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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, January 15, 1910.

VACCINATION AND IMMUNIZATION AGAINST TUBERCULOSIS.
—Medical and veterinary papers are continuing the publication of the investigations that have been made public lately in relation to those very important questions. It is unfortunate that the space that is allowed to this chronicle does not permit the full consideration of all that is now of recent date, coming, as for instance, from those ever-working investigators, Director Doct. S. Arloing and Prof. Vallée; I must be satisfied in merely presenting a concise résumé of what has appeared lately.

At one of the last seatings of the Academie des Sciences, Director Arloing made a communication on the anti-tuberculous vaccination for cattle where he resumed the results he has obtained in a series of experiments upon this important subject which he has carried out since 1902.

The vaccine matters that he used were fixed varieties of human and bovine bacilli, which are indefinitely transmissible. These varieties, which do not give rise to any appreciable lesions, are innocuous to the animals that are vaccinated and also to the one who vaccinates. They can be used either by intravenous injections or by the digestive tract or again by the skin. The thus artificially created immunization was confirmed by the inoculation of very virulent bovine bacilli. The control was made by similar inoculations upon witness subjects vaccinated; and others

clinically observed had been finally slaughtered and been the subject of a most minute autopsy. One of 60 vaccinations performed and 30 witnesses used, the learned doctor has obtained the following results: among the vaccinated 50 per cent. complete success, 25 per cent. of relative success and 25 per cent. of failures. Among the witnesses, no infection in 9.2 per cent., partial infection in 27.2 per cent., complete infection 63.6 per cent.

Comparing the degree of infection in the failures and the partial infections, the lesions appeared six times more important in the witnesses than in the vaccinated. The vaccination by venous injections has given the best results (75 per cent. of success), then came the operation by ingestion with 50 per cent. and finally the subcutaneous method with 10 per cent. of perfect and 73 per cent. of partial successes.

The immunity may last between 15 and 22 months. It may be increased for a longer period of time by other subcutaneous inoculations entirely harmless.

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And in his conclusions Dr. Arloing says: "This method of immunization does not exactly resemble any of those presented up to this day.

"All the methods known rest on the use of attenuated tuberculous bacilli. Therefore I am permitted to congratulate myself in having been the first to support the theory of the variability of the tuberculous virus and to have defended it for a long time against promoters of the exceptional immunity of the bacillus of Koch.

"To this point of view my method does not differ from the others. But the vaccines that I use are not composed of bacilli, individually and extemporaneously modified, either by heat or antiseptics or by the passage by the organism of cold blooded animals. Their active agents are living bacilli of bovine origin, deeply modified in their tuberculigenous potency by a

long series of cultures in the depth of glycerinated bouillon. The modifications that they have sustained are now fixed, and thus these bacilli form breeds which are indefinitely transmissible. These breeds, comparable to the anti-carbuncular vaccines of Pasteur, can no more produce the tuberculization of viscera and lymphatic glands, in the condition that I recommend them to be used. Being harmless to monkeys, I believe them also innocuous for man.

"By their characters they resemble one of the avirulent vaccines of Prof. Kleinmer of Dresden. At any rate, I am positively certain that they cannot cause any fatal infection in animals, contrarily to the *bovo-vaccine* of Von Behring or the *tauruman* of Koch-Shutz, to whom I reproach fatalities between 7 or 8 per cent. of the vaccinated.

"I do not claim that the series of those experimental researches are closed and probably this antituberculous vaccination still requires some improvement, but the results so far obtained justify its use; with, however, the application of the ordinary measures of prophylaxy, so as to reduce the damages caused by bovine tuberculosis in the same way in fact as it is done for other contagious diseases."

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On this side, Prof. Vallée has also published in the *Annales of Pasteur Institute* two very important articles on tuberculous immunization with the résumé of the immense labor that he has carried out in the last six years, and in which not less than 666 animals were submitted to experimentation.

In his experiments, Vallée, to confer immunity, tried at first living bacilli. He asserted that equine bacilli were equivalent to that of Behring and that this equine bacillus was innocuous to bovines. Then he showed that the inoculation was not dangerous, that the resorption of the introduced bacilli was relatively simple and rapid, and that they did not recuperate any virulency in the inoculated organism.

As a test-virus he resorted to a very virulent bacillus obtained from tuberculous mastitis. All his experiments were carried out in two series of animals vaccinated and witnesses submitted to this test-virus. All the witnesses showed at autopsy very extensive tuberculous lesions. The vaccinations were always made in two seatings, three months apart. The first consisted in the introduction by the various processes, intravenous injections, subcutaneous vaccinations, digestive ingestions, of some milligrammes of equine bacilli and at the second of 20 to 40 milligrammes of the same, except in the method by ingestion where the doses have been as high as 50 centigrammes.

Vallée has also resorted to dead bacilli, so as to grant at once a kind of prevaccination to be used in contaminated centers where young animals are exposed to take tuberculosis easily. And for such experiments he used bovine bacilli very virulent, which were treated with iodined water, or again bacilli killed by heat. The results were not satisfactory.

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The conclusions drawn from all these long series of experiments are very interesting. Vallée resumes them as follows: "In the attempts of anti-tuberculous vaccination of bovines, it is indicated to resort to the use of a bacillus free of virulency for those animals and one which can be resorbed rapidly and completely.

"These essential qualities existed in the bacillus of equine origin that we employed. The results that we have obtained by intravenous inoculation of this microbe, in the condition that Von Behring has indicated for his bovo-vaccine, can be compared with those obtained with that substance.

"The resistance granted by this method remains *very relative*. It is proportional with the *quantity* of bacilli inoculated as vaccinating agent. In no case, does it permit an animal to stand exposed to natural infection longer than a few months. It is also insufficient to insure *complete resorption* of the bovine

bacilli inoculated intravenously as test of the immunity. It does not reduce the aptitude of bovines to be infected experimentally by ingestion.

"The immunity conferred by sub-cutaneous inoculation of these same bacilli in doses double to those used by intravenous injections is much inferior to that obtained with this last. It is possible to confer to bovines, either by injection of small doses of virulent bovine bacilli or by that of large doses of bacilli almost a virulent, a *very real* immunity to infection by the digestive tract.

"It is indicated to use in the vaccination *per os* rather poorly virulent bacilli, so as not to promote a dangerous infection of the cow-barns by the vaccine bacilli that the vaccinated animal throw out in the few days following the inoculation.

"The granted immunity is so much more marked with the vaccination *per os* that it has been performed in a younger animal. Contrarily to the vaccination by intravenous injection with the same bacillus, it allows *complete resorption* in seven months to the most of virulent bovine bacilli taken in a test meal.

"Vaccination *per os* does not protect young bovines forever. It only permits them to resist for one year about to the close contact with animals, carriers of open pulmonary lesions.

"This vaccination *per os* deserves to be studied from a practical point of view, so as to use it in stables in connection with the detection and the elimination of tuberculous individuals, carriers of open lesions.

"Vaccination of bovines with dead bacilli has given us no results or at best, results only far inferior to those obtained with living bacilli."

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GENERAL ADVICES UPON CASTRATION.—Published in the *Berliner Tierärztliche Wochenschrift*, this article of Prof. Toeper analyzed in the *Revue Generale* is, I imagine, a lecture to young practitioners, as it calls their attention to the operation

and contains valuable pieces of information which every one can profit by.

It seems that in Germany castration is in some regions left in the hands of gelders. Young veterinarians, says Toepper, ought to practice it and be familiar with it. The habit of having animals kept fasting for one or two days seems injurious to colts of one or two years, by promoting the displacement of the omentum because of the vacuity of the stomach and intestines and as consequence the production of hernias. As a proof, the author states that he has observed in one day 11 cases of epiploic hernias out of 38 operated.

Aged stallions, and especially thoroughbreds, must, however, be kept fasting one day before the operation. If these animals have been without food for 24 hours and have been anesthetized with chloroform, chloral, morphine, etc., when they are returned to their stables, they rush to their manger, gobble up their food and swallow it without chewing it. It is not unfrequent then to observe cases of choking. Then one has to take hold of the tongue of the horse, pull it out and try to extract the food contained in the mouth. To prevent this accident, thin watery mash better be given instead of dry fodder, hay, etc.

The operator must never forget to explore the inguinal canal and especially the external inguinal ring. This may be done with the animal standing, except in fat individuals where it is better to do it while he is cast and that also after the incision of the scrotum—hence the indication to operate only after the animal is after his first year.

Acquired inguinal hernia is due to all the causes likely to produce a narrowing of the abdomen and a dilatation of the internal inguinal ring. This narrowing of the abdomen is due to the contraction of the abdominal and the dilatation by the crural muscles. Pressures upon the relaxed abdominal walls have no effect in the formation of inguinal hernias. Recent hernias are rare in stallions used for breeding purposes. Toepper has only observed one case in a stud establishment where between 180 and 200 stallions were kept. A stallion when he has colic must al-

ways have its testicular cord examined. The exit of intestines is a common complication with some methods of castration and some ways of casting. The author operates old stallions by method of covered testicles, the hind quarters being raised. He operates without anesthesia and with the animal cast. No castration ought to be performed when epizootics prevail; infectious pneumonia, typhoid fever, distemper, etc. In regions where tetanus prevails, serum injections must be used.

Castration with clamps is imperfect—the pressure on the cord is applied upon a too wide surface and the mortification is incomplete unless caustics are used, and then their action is irregular. Method by torsion of the cord is defectuous for the same reasons. Prof. Sand, of Copenhagen, has invented a special nipper to secure the cord and crush it thoroughly.

Between 1892 and 1898 Toepper has castrated about 3,000 horses with this nipper and has never had any accident. With the emasculator he has had two serious hemorrhages. Hemorrhage following castration may come from the testicular cord or again from the blood vessels surrounding them. This last is always less severe.

The section of the cord must be made as high up as possible to avoid the infection of the stump. The cutaneous incision must be quite free also to avoid retention of the collection of fluids. Muscular tissue and pieces of connective tissue projecting beyond the stump of the cord or protruding from the wound must be removed with the emasculator. Antiseptic care during the operation must be attended to. The operating wound is to be covered with wadding until the hobbles are taken off. Taken to his stall, the animal is tied with head high. He is given a little tepid water and a little hay. He is to be watched and in case of hemorrhage be placed in a narrow stall to prevent his moving too much and keep his legs close together. The cleaning of his hind legs is to be dispensed with for several days. The day following the operation a walking exercise of an hour morning and evening is allowed. Towards the seventh day the wounds are cleaned, their edges separated and the sloughing tissues re-

moved. Recovery is complete in two or three weeks. There are some very good points in the recommendations of the German professor, but we fancy that there are many that American surgeons would hesitate to follow.

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SURVIVAL AFTER INTESTINAL RUPTURES.—This serious and always fatal accident may sometimes give occasions for some reason or another, to difficulties which may result in law suits, and there may be instances when experts may be appointed by the courts to settle the question of about at what time the rupture took place, and consequently how long may a horse live after the lesion has occurred. By reading the *Bulletin de Medecine Veterinaire* from Malines (Belgium), I think this has already been the case, and a veterinarian, Mr. C. Verlinde has related several cases which throw light on the subject. I imagine he did it to substantiate an advice given as expert, where it was stated that in case of intestinal or stomachal rupture, the animal may survive to it for 24 hours. And if that is probably a very rare exception, it is just as rare to see death take place before four or five hours, exception being made, however, of those cases where the rupture comes and complicates *in extremis* inflammatory or gangrenous lesions already existing. This continuation of life varies considerably, of course, and depends upon a great many different circumstances: general condition of the animal, extent of the rupture, quantity and nature of the substances dropped into the peritoneum, nature and character of surrounding lesions, etc.

But notwithstanding the frequent difficulty to determine exactly the moment when the rupture occurred, Mr. Verlinde believes that in the very great majority of cases, the animal may and does live between eight and twelve hours after. To substantiate this assertion several cases are recorded; several illustrations.

It is one animal whose rupture was diagnosed one afternoon at 3 o'clock P. M. after suffering with colic all the morning and died 11 hours after. Another has colic since 24 hours. Treated during the day, a washing of the intestines with long enema is attempted at 5 P. M. Through some error in the manipulations of the rectal injection, a perforation of the intestine occurs. The animal died during the night at 2 o'clock A. M., or 9 hours after the perforation. In a third case, a horse takes his meal, is put to work, suddenly drops heavily down. He is taken home at 9.30 and is seen by Mr. V. only at 12 o'clock midnight, when a diagnosis is made of rupture of the stomach. The horse lived until 3 o'clock A. M., having survived 10 hours after the rupture had taken place; no doubt occurring when the animal had his fall. The last case is still more interesting. Taken ill immediately after his morning meal, a horse gives symptoms of stomachal indigestion with probably a rupture. The horse suffers all day, all night and the next morning he is yet alive, but in such wretched condition that at last the owner has him destroyed. The horse had lived 24 hours after the rupture of the stomach had been diagnosed. The fact that the contents of the stomach had been held as in a sac between the folds of the great omentum may explain this long survival.

Conclusions of the author: Generally, if not always, the length of the survival after a rupture is superior to five hours.

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AGAIN THE TINCTURE OF IODINE AS SURGICAL ANTISEPTIC.
—I have already treated of this subject in preceding chronicles, and have shown how it was gradually becoming of general use. Yet I may be allowed to resume another article on it which has been published some time ago in one of our exchanges, *The Clinica Veterinaria*, of Milan, by Prof. D. Bernardini.

Iodine has not yet obtained in veterinary surgery the wide application that its precious aseptic properties deserve. Since a long time, having observed how tissues, even those injured recently,

were tolerating the tincture, the author used it to sterilize infected wounds, especially those that were to be sutured.

At first he used it in some cases of bearings of superficial sutures, to purify the wound before realizing a second union. The tincture being applied on the wound after the sewing and for several days after until cicatrization. Applied in sluts after the removal of mammary tumors, on the wound itself and before the application of the sutures. Renewing this for several days after, a first intention healing process occurred in the great majority of cases. Even when applied directly on tissues freshly cut, the results were always the same.

After oxygenated water, tincture of iodine, says Bernardini, is the most energetic antiseptic that tissues will stand. This is explained by the facility with which it evaporates and diffuses with the organism's heat. And also by the facility with which it combines with the alkaline elements of the organic plasmas.

Its action in the depth of structures is illustrated in the radical treatment of canker of the foot and the results obtained by surgical interference would probably not be so brilliant if, as has been the case in numerous instances, the application of the tincture of iodine had not come to complete the work done with the sharp instrument.

In injuries by crushing of the metacarpo or metatarso-phalangeal joints in dogs, lesions which are most severe, and often justify amputation, there again dressings with iodine were followed by rapid recovery.

The use of tincture of iodine has been systematically organized at the veterinary clinics of Milan to sterilize the skin before surgical operations. As it is not easy to shave the skin of animals without using soap, the shaving is done several days ahead of the operation, or the operative field is dehydrated with alcohol before the iodine is applied. In the cases where a closed dressing cannot be applied, the use of the tincture is also advantageous, as the iodine forms on the stitches of the sutures and on the surrounding region a thin protecting covering pellicle, sufficient to protect the parts underneath.

The application must be renewed every two or three days, and the day before the threads of the sutures are to be removed, it is good to soften that pellicle with the application of a little antiseptic ointment.

Bernardini has obtained excellent results which he says are superior to any of those gained with other methods which at best are slower and more complicated.

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EXTRACT OF NORMAL SERUM OF HORSE.—At the Society of Therapeuty, where I sometimes attend, I heard lately a paper in which there are some points which veterinarians might take advantage of. It related to the use of the extract of normal serum of horses in given cases of hemorrhages.

The hemostatic and cicatrizing action of the normal serum is well known. Still its use is comparatively limited, on account of the difficulty to have always at hand fresh and aseptic serum. Two therapeutists, M. M. R. Simon and E. Chody, have thought that this therapeuty might be rendered more applicable by using the serum of horses, obtained aseptically and dried immediately in vacuum, to the minima of 2 millimeters pressure and at a temperature close to zero.

Their experiments and those of others who have tried the dried serum have demonstrated that it keeps all its properties, being used either in dry powder or again dissolved in water. In human practice it has been used against hemorrhages in sheet in epistaxis, in hemorrhages following the extraction of teeth, in the removal of tonsils, and of adenoid growths or of the turbinated bones.

Internally it has given excellent results in severe anemia, dyscrasic hemorrhages, hemophily. There are certainly cases of similar nature that occur in veterinary practice and where the use of this extract of normal serum of horses would prove advantageous. Let it be tried!

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OUR DEAD IN 1909.—Death has during the year 1909 played sad havoc amongst veterinarians of notoriety in Europe, and England, France, Germany, Italy and Hungaria counts a certain number of victims taken from our professional ranks.

From England, in the month of June we had to record the sad death of Captain Veterinary Surgeon Quinland, who died in India, victim of his profession, from rabies. More recently it is Prof. Axe, late of the Royal College of Veterinary Surgeons, of London, no doubt known by many amongst our readers. Prof. Axe wrote a great deal, but his principal work is the one entitled "The Horse," which is published in nine volumes and whose manuscript was just completed when he took ill.

From France, our confrères had to regret the death of Doctor St. Yves Menard, who was President of the *Association Centrale des Veterinaires*, a benevolent society, which provides financial help to unfortunate members of the profession and to their families. He was professor of Hygiene in one of the governmental schools and Director of the French Institute of Animal Vaccine. Prof. F. Suffran died comparatively recently in October. Author of many articles published in French veterinary journals. Prof. Suffran died quite young after holding for several years the chair of Clinical Medecine and of General and Surgical Pathology at the veterinary school of Toulouse.

From Germany we recall the death of Dr. A. Primer, Professor of Chemistry at the Superior Veterinary School of Berlin; that of Doct. Gustav Flemming, who died at the old age of 85 years, and that of Doct. Otto von Bollinger, Rector of the University of Munich and late professor in the veterinary schools of Zurich and of Munich. Doctor Bollinger was well known and appreciated among our Swiss and German confrères. He has left a large contribution to pathological veterinary literature.

From Hungaria, at Budapest, Doctor von Thanhoffer died in March. He was Professor at the Superior Veterinary School of Budapest.

Italy had to regret the loss of Prof. Pietro Valdonio, of the school of Perousa, and of Doct. Pietro Caffaretti, Director of

that excellent periodical, *Il Veterinario di Campaña*. All the veterinary publications of Europe have expressed their regrets and given proper obituary notices for the loss that the profession in the United States have sustained with the death of our dear departed friend, Doct. Leonard Pearson.

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BIBLIOGRAPHIC ACKNOWLEDGMENTS.—Bulletin 121 of the Bureau of Animal Industry just at hand treats of "The Need of Controlling and Standardizing the Manufacture of Veterinary Tetanic Antitoxin."

It is the result of investigations made by Dr. John R. Mohler, Chief of the Pathological Division, and Dr. Adolph Eichorn, Bacteriologist. In presenting it to the Secretary of Agriculture, Chief Doctor A. D. Melvin said that it was the report of an investigation which had become necessary because "under the existing condition the veterinarian and stock owners were at the mercy of the manufacturers of the antitoxin—some of whom make no statement as to the strength of their products—and it was very necessary that the veterinarian should have some reliable assurance of the strength of this most valuable therapeutic agent, and therefore there is need for legislation empowering the secretary to supervise and control the manufacture of said antitoxin and prescribe and enforce a proper standard of potency." The report contains an introduction on the subject, concise statement of the nature and cause of tetanus, an historical summary, the mode of action of tetanus toxin, then the standardization of the antitoxin by European and American methods, and after giving the results of the examination of some of the commercial veterinary antitoxins concludes as follows:

1. The veterinary tetanus antitoxins prepared by the different manufacturers have not a uniform potency and the variation amounts in some instances to about two-thirds less than the strength which it should possess.
2. In order to insure a uniform strength the manufacturers of veterinary tetanus antitoxins should be required to use the

American standard and to state on the label the number of American units the dose contains as is required for human tetanus antitoxin.

3. The immunizing dose for a horse should contain at least 1,500 immunity units of the standard established by the U. S. Public Health and Marine Hospital Service.

4. It is seen that the veterinary tetanus antitoxins vary extravagantly in the unit strength, and some are comparatively weak in antitoxic potency, which shows the necessity for the same supervision by the U. S. Department of Agriculture over biological products used in veterinary medicine as is now exercised by the U. S. Public Health and Marine Hospital Service over similar products used in human medicine.

5. The request for such supervision should have the indorsement of the veterinarian and live-stock interests of this country.
IT CERTAINLY WILL!

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The report of the Principal Veterinary Surgeon and Bacteriologist, Dr. S. Dodd, of Queensland, Australia, in which are considered the following contagious and infectious diseases which prevail in that country: Tick Fever or "Red Water," Osteomalacia of cattle or "Soft Bone Disease," Infectious Ophthalmia or "Blight," Tuberculosis, Contagious Mastitis, Contagious Abortion, Black Leg, Stomach Worms in sheep and calves, Influenza, Swine Fever, Spirochaetosis of poultry, Eye Worm in poultry, and a few others of less interest.

The report concludes in giving the source and results of the examination of 283 specimens which were sent to the laboratory during the year ending June 30, 1909.

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VETERINARY NOTES, VOL. III, Dec., 1909, from Parke Davis & Co., is also at hand with a good likeness and obituary of the late Dr. Leonard Pearson.

A. L.

FRUITION.

There is no person whose privilege it was to have known the late Leonard Pearson, but who gauged his ability above the average man and thoroughly appreciated the masterly work he was doing in veterinary and sanitary medicine; but few there are who could have measured the extent to which his plans were projecting into the future, while he was performing his duties in the present. Now that he has passed into the golden realms of immortality, his mortal plans are being gradually unfolded by those into whose keeping his precious legacy has passed.

The new buildings of the veterinary school at Philadelphia, of which he was dean, were planned by him, and while he was called to his Maker long before their completion (as there is even still much to be done), yet he had carefully planned every detail; so that as the work goes on from time to time, it is making material the creation of his fertile mind.

In many instances the uses for which he had designed certain parts of the buildings had not presented themselves at the time of his death, and are now coming into evidence as such occasions as he had anticipated present themselves. An example is the dinner given by the Keystone Veterinary Medical Association to the two gentlemen who have succeeded him as dean of the veterinary school and as state veterinarian, which was held in Alumni Hall, a room in the veterinary building "planned by Dr. Pearson for just such occasions," as was feelingly remarked by Dr. John Marshall at that dinner.

Another impressive example of the fruition of his plans was the congregation upon the campus and within the buildings of the University of Pennsylvania Veterinary School in the first days of February of the Pennsylvania Live Stock Breeders' Association and the Pennsylvania Dairy Union. Not only were these two important organizations in session within the buildings of the veterinary school, but had with them an exhibition of several breeds of horses, cattle, sheep, swine, poultry, and even a variety of fruit. With his broad conception of things, Dr.

Pearson had appreciated the mutual advantages that must accrue from such an arrangement. The great benefit to the student body of that school that must result from the presence of the farm animals and the association with those bodies of men familiar with their care, habits and various productive qualities, is pleasant to contemplate. He had more than that in mind, however. He realized the benefits to the veterinary profession that must result from the stockman becoming somewhat familiar with what constitutes a veterinary school, its course of instruction, equipment, etc.

He had planned to have those organizations meet there, just as they did meet last month, calculating for their accommodation in the plans of the veterinary buildings. Fruition! Ah, but who can measure the *extent* of the fruition? It certainly is not measured by the benefits derived by that student body through the presence of those organizations and the live stock exhibit in their midst and the benefit to the veterinary profession and the stockman, because the latter has conceived by his visit to that institution a higher regard for the veterinarian, *much* as that means. No, it will *continue* to bear fruit by a perpetuation of such a custom in that institution and by its emulation by others, and is *beyond* calculation.

The Live Stock Breeders' Association, of which Dr. Pearson was vice-president, and the Pennsylvania Dairy Union, paid their respects to his memory in a memorial service on the evening of February 2 at Houston Hall; just as respect is paid to his memory and his name revered whenever or wherever there is a congregation of veterinarians. These two examples of the fruits of the labor of this great man, which are being harvested by the profession in whose fields he so earnestly and unselfishly labored, are infinitesimal as compared with what the vineyards of the future hold in store for them; but will, perhaps, serve to remind the great army to which he belonged, of their everlasting obligation to him and stimulate its members to higher ideals. Through the courtesy of one of our confrères, his friend and associate, Dr. W. Horace Hoskins, who paid a high tribute to his

memory in an address before the members of The Veterinary Medical Association of New York City at its February meeting, we are enabled to give publicity to the following beautiful sentiments. We regret our inability to furnish our readers with the address of Dr. Hoskins also, but as it was extemporaneous, and there was no stenographer present, its enjoyment and benefits are necessarily limited to those who were privileged to have been within the sound of his voice on that occasion.

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MINUTES OFFERED BEARING UPON THE DEATH OF DR. LEONARD
PEARSON, KEYSTONE VETERINARY MEDICAL ASSOCIATION,
NOVEMBER 9, 1909.

Out of the seeming unknown there ever comes forth at times of nation's great needs strong and specially fitted men for distinguished services for a country's people.

Into the domain of veterinary science there stepped into its service in the early 90's one whose taking away we now mourn with a deeper sadness and keener appreciation of a greater loss than has ever fallen upon the profession of our land.

With all the priceless heritage of a mother's training and education, and the filial devotion that steadfastly sustained him all through life, he grew up with all the charm of a loving and sweet disposition, the kindest of manner and most considerate forethought of others and passed from our midst too soon, more widely lamented than the boundaries of our own country.

With a wonderfully trained mind he portrayed the future of veterinary science, and fashioned his own life work to complete the structure that he conceived.

Endowed by nature with great physical powers he labored with incessant zeal, unmindful of the inexorable laws of rest and work, straining his wonderful storehouse of strength to the breaking limit, that he might compass the magnificent plans, constantly unfolding from his great creative mind.

Blessed are they who were privileged to bask in the sunshine of his life for he ever lifted men to higher planes of service and of usefulness.

Enduring must ever be the memories of his crowded life of rich tributes to his profession. Nameless and unnumbered the little acts of kindness and of love his bounty spread on every side.

May we in this hour of our irreparable loss find in the example of his life of unselfish devotion to our interests, a firmer bond of union that will make for our calling a progress and devotion as a fitting monument for the blessings he gave, in some measure a testimonial of our esteem and admiration.

Joining with those who were bound to him with ties of blood and loving affection, we mingle our sorrow with theirs, sincerely trusting that they may in some measure be sustained by increasing realizations of greater and greater achievements and more widespread influence and worth of our profession that received at his mind and hands the stimulating touch of genius and of power.

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MINUTES OF VETERINARY FACULTY, UNIVERSITY OF PENNSYLVANIA.

The strange mutations of Providence have stricken down, in the seeming hour of his greatest strength, our acknowledged leader, esteemed colleague, and fellow worker, Leonard Pearson.

At noon-day of his greatest usefulness and most serious need, he has paid the final summons to the last sleep.

To this school, for whose advancement he knew no limit of service, his profession, to which he brought the highest honors and greatest progress; his fellow worker, to whom he brought a rich measure of reward for services well done, and to the well-being of all mankind, he added much to make life better worth living.

Personally rich in the precious gifts of a kindly disposition, a genial manner, a charming grace, and the deepest love for his

fellow man, his career among us stands out a shining example of a life well lived, and a companionship too short, too early severed.

Preciously indeed must the coming years enhance the privilege to have been numbered among his friends. Exemplary as were his character and stewardship, stronger and better must our service be in our common field of labor, that he shall not have lived in vain. Sweet and enduring the memories of his untiring zeal and fidelity, enshrined in our safe keeping, to open up to us a higher sense of duty and consecrated services, for which he labored and toiled.

In the evening shadows of our deep sorrow, as we record this minute of our great loss, we are sustained by the spirit of him for whom we mourn, and out of the mist and shadows let us endeavor to discern the pathway along which he would have us tread.

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THE SAN FRANCISCO MEETING.

If the REVIEW's interpretation of the pulse of the veterinary profession of America is correct, the approaching meeting of the American Veterinary Medical Association at San Francisco will surpass the expectations of its most sanguine advocates.

Of the middle-west and far west no one has ever entertained for a moment the slightest doubt; the support of Canada and the Northwest are assured; from the South we have had no signal as yet, but feel certain that we shall hear something *soon* that will inspire confidence in the bosoms of the most skeptical. With the north and the south and the west and middle-west in action, all we need is to start the Atlantic and New England states in motion and we will push before us such an army toward the Pacific as will astonish our brethren of the Golden West. The wedge for the eastern movement has already been placed, in the form of a communication from one of the older members of the A. V. M. A., Dr. W. Horace Hoskins, of Philadelphia, who suggests a plan whereby Chicago shall be the point of as-

semblage for attendants from the east and middle-west, going from there by special cars or special train; the details of which we will leave you to read first-hand from Dr. Hoskins' communication on page 705. We believe it will appeal to the majority and will be a stimulus for many to go that would not perhaps care to undertake so long a trip under different conditions. In any case it is, as we have said, a *wedge*, and if not adopted as a whole, will serve to provoke a line of thought in channels that will eventually result in the evolution of some satisfactory plan. With a pleasurable trip thus mapped out and the delights as depicted by Dr. Archibald on page 702 of this issue, in anticipation, it will be difficult for any veterinarian to conceive of a more auspicious occasion on which to realize the dream of his life, "a visit to California."

Another demonstration of the irrepressible energy of our western confrères, as referred to by Dr. Archibald in his communication, is evidenced by the outlines of the program for the five days, which Secretary Lyman has *already* been able to give us, under "Society Meetings," on page 722, also in this number. In lieu of the list of applicants for membership in the A. V. M. A. which we hoped to publish in the March issue, we are taking the liberty of quoting Secretary Lyman as saying that "the number * * * exceeds those received during similar periods of previous years," and he prophesies that we "are going to be able to fulfill Dr. Archibald's promise of one hundred and fifty new members." *Espérons-le.*

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LEGACY OF PROF. AXE.

In our European Chronicles in this issue, under the heading, "Our Dead in 1909," Prof. Liautard has included the name of the late Prof. Axe, England. In a communication just received from Dr. Liautard, the following clipping from some English paper was enclosed:

"Mr. John Worthley Axe, of The Lodge, Winthrop, Newark, Notts, lately a professor in the Royal College of Veterinary Surgeons, London, and lecturer at the Downton and Wye Agricultural Colleges, left £2,000 to the Victoria Veterinary Benevolent Institution to provide almshouses for veterinary surgeons, £500 to the Royal Agricultural Benevolent Institution, and £400 to the Royal College of Veterinary Surgeons for portraits of Professors Spooner, Summers, Varnell and Brown, to be hung in the council chamber in recognition of their great services to veterinary science."

One cannot read the above notice without being deeply impressed with the love that our departed English confrère bore for his chosen profession, in providing after his useful life for the care of those of its members less fortunate than he and for the proper recognition of others whose lives have been devoted to veterinary science.

NEW YORKERS IN KENTUCKY.—Matters on the New York Horse market are evidently in a very flourishing condition and full of promise for the future, as no less than four members of the American Horse Exchange have been in Lexington this week scouring the Blue Grass in search of available material for their spring trade.

W. A. McGibbon, who has had unprecedented success in all of the Eastern shows, has been here for a number of days, accompanied by his charming wife, who is one of the most daring and success exhibitors in the show ring.

Mr. Lehmann Straus was seen trying out a number and Mr. Willoughby was here in the interests of George Watson.

Mr. Godfrey Preece was visiting the various saddle horse establishments looking for further additions to his championship string of walk, trot and canter saddle horses.

Every one seems to feel that the business is going to be better this spring than it has been for many years, and that prevailing prices will range higher than for a long time past, though the scarcity of available material is still badly felt.—(*The Stock Farm.*)

ORIGINAL ARTICLES.

THE TREATMENT OF SUPPURATIVE CONDITIONS IN ANIMALS BY BACTERIAL VACCINES, INCLUDING A PRELIMINARY REPORT OF THE USE OF A HYPER-IMMUNE SERUM IN CANINE DISTEMPER.*

BY J. MCL. PHILLIPS, M.D., COLUMBUS, O.

From the Pathological Laboratories of the Ohio State University.

The protection of the body against bacterial invasion and its subsequent deleterious results is the most fascinating and one of the most important subjects with which the pathologist has to deal. This process is not a simple one, but various and complex processes join in protecting the body against invasion and in overcoming the effects of the bacteria after they have entered it and multiplied. Thus we find agglutins, precipitins, lysins, antitoxins, stimulins, opsonins and various other substances described by Nuttall, Pfeiffer, Behring, Ehrlich, Metchnikoff, Wright and others.

This paper has chiefly to deal with one of these processes, namely, phagocytosis, or the property possessed by certain living cells, as some of the leucocytes, of engulfing and digesting micro-organisms and other solid substances.

Haeckle was the first observer to note this phenomenon, but it was not until Metchnikoff showed that living organisms entering the body were often engulfed and destroyed by the polymorphonuclear leucocytes and promulgated the theory that immunity was due to phagocytosis that it attracted much attention.

*Presented at the August meeting of the Ohio Society of Comparative Medicine.

It was soon shown that immunity to certain infections could be transferred from one animal to another by the blood serum, and Metchnikoff's theory found few supporters. Later Metchnikoff came to the belief that the serum was of importance in combating infectious diseases, but attributed its action to the presence in it of substances which stimulated the leucocytes to phagocytosis.

The studies of Denys, Leclef and Leishmann on the alteration of the serum, and the consequent increased phagocytosis in certain diseases, paved the way for the work of Wright and Douglas, who discovered a substance in the serum which united with the bacteria and rendered them susceptible of being phagocytized by the leucocytes, naming it opsonin. They showed that opsonins were present both in the normal and infected individual, and that they are fairly constant in the former and very variable in the latter.

The fact that opsonins act on the bacteria and not on the leucocytes is easily shown. If a bacterial emulsion is mixed with washed living leucocytes, and this mixture kept at 37° C. for 20 minutes, practically no phagocytosis occurs. If a similar mixture is made and then serum from a normal person is added, phagocytosis is very active. Again, if the same bacteria which are used in the previous experiment have been added to the serum and then removed by filtration, the serum will no longer cause phagocytosis to occur, if it is added to another similarly treated and incubated mixture of leucocytes and bacteria. The opsonins are specific; the opsonin for tubercle bacilli combines only with tubercle bacilli; that for streptococci only with streptococci. In fact, Wright has seemed to demonstrate that the opsonins are more or less specific for certain strains of specific organisms. For this reason the bacterial vaccines should always be prepared from cultures taken from the lesion of the animal to be treated, excepting in those diseases in which the isolation of the organism is very tedious and difficult, so that the treatment could not be started until the disease had run its course. In other words, *the vaccine should be autogenic whenever practicable.*

Wright believes that the opsonins are highly important in combating many infections, and that they may be increased for each specific organism by subcutaneous inoculation of organisms of the same species which have been killed or attenuated by heat. He is guided as to the number of organisms to be injected and the frequency of injections by the opsonic content of the patient's blood, and measures this by a modification of Leishmann's method. The principles of this method can be briefly stated.

Equal amounts of an emulsion of washed leucocytes suspended in .85 per cent. salt solution; of an emulsion of the bacteria to be tested suspended in the same solution and of the serum to be tested, are mixed together, and incubated at 37° C. for 15 minutes. Smears of this mixture are made on slides, stained, and the average number of bacteria contained in each leucocyte is obtained by counting them in fifty to one hundred cells. An exactly similar preparation is made excepting that a normal serum is used in place of that from the diseased animal. The opsonic index for the serum in question is obtained by dividing its average number of bacteria per leucocyte by the average number of bacteria per leucocyte in the normal serum.

As the normal index, according to Wright, varies no more than from .8 to 1.2, an index below .8 would be diagnostic of the presence of an infection with the organism tested. Thus, if the leucocytes of a horse with a fistula take up four staphylococci of the same specimen as of those causing the disease and the leucocytes of a normal horse take up eight of them, the opsonic index of the horse to those staphylococci is .5.

Wright and his followers believe that either the opsonins are the principal protecting substance in the blood or that the opsonic index indicates not only the amount of phagocytosis but also the amount of other immunizing substances produced in the body. Therefore they use the index as a guide to the degree of immunity produced in the animal under treatment. They believe that in local infections comparatively small amounts of bacterial substances are absorbed by the body, and in consequence of the lack of these antigens but little active immunity is pro-

duced. Consequently, the proper method of effecting a cure is to actively immunize the animal by injecting the invading organisms (a bacterial vaccine), using the opsonic index as a guide to the effects produced by these bacterial inoculations and to the dosage of bacteria.

Each inoculation (vaccination) is followed by a period in which the opsonic index is low (negative phase), which in turn is followed by a normal index, or one higher than the normal, for a varying period (positive phase). Very small injections may be followed by an almost immediate rise in index, and by their repetition at intervals of a few days the index may be kept constantly high. Large injections are followed by a very marked negative phase, which may continue for some time. In treating animals it is best to start with very small doses, so that the negative phase is very slight or practically absent. The positive phase following very small injections of a bacterial vaccine is transient and followed in a few days by a decline. *If the injections are repeated at short intervals, one positive phase may be implanted on another, and the index maintained above the normal.* Wright does not believe that the clinical symptoms afford criteria as to the amount of immunity being produced by the bacterial inoculations, and believes that the index must be constantly taken and the treatment governed accordingly.

The determination of the opsonic index is a matter of extremely delicate technic, and in one laboratory we have found considerable variation in counts made by different workers using the same bacterial emulsions and leucocytes and sera taken from the same animals.

Park and Biggs¹ have shown that the leucocytes from different persons vary greatly in their activity and selective action, and that the amount of opsonins in the sera of supposedly normal persons varies from time to time so that the normal is not constant, and a different dividing factor is found for each day's determination of the index of the animal under treatment.

For these reasons we have concluded that it is impractical to use the index as a guide for the injections of bacterial vaccines in the treatment of animals, and have been using them in an empiric way.

Theoretically, one should always isolate the organism which is the cause of the disease by means of cultures taken from the lesions in the patient, and the vaccine should consist of a pure culture of this organism suspended in a physiological salt solution and killed by heat. However, we have found that this entails a needless loss of time, and that the results obtained in many conditions are no better than by a simple method which McCampbell and I² have already described. Another advantage of this method is that it does not involve the making of subcultures and a consequent loss in the virulence of the organism. The greater the virulence of the organism before its attenuation by heat, the more successful is the treatment. The vaccines which we use in most cases of ordinary local suppurative lesions are simply 24-hour cultures, taken directly from the lesions to be treated, on agar slopes suspended in .85 per cent. sodium chloride solution with .5 per cent. carbolic acid added as a preservation.

Wright and his followers count the bacteria in the emulsion by thoroughly mixing it with an equal volume of normal human blood. Stained smears of this mixture are prepared and both the red corpuscles and organisms in given areas on the slides are counted. The number of bacteria in a cubic centimeter of the emulsion is computed from their ratio to the red blood cells, of which there are 5,000,000 in a cubic millimeter of normal human blood. Even with the most careful technic we have been able to only approximate the number of bacteria in an emulsion by this method, and so have used McFarland's nephelometer³ for standardizing our vaccines, and find it quite accurate enough for practical purpose. This ingenious instrument consists of a series of small test tubes of uniform size containing varying amounts of a precipitate of barium sulphate, which is obtained by mixing varying amounts of a 1 per cent. solution of chemically formed

sulphuric acid in distilled water and of a 1 per cent. solution of chemically formed barium chloride in distilled water, as follows:

Tube No.	Sulphuric acid sol.	Barium Chloride.
1	.1 c.c.	9.9 c.c.
2	.2 c.c.	9.8 c.c.
3	.3 c.c.	9.7 c.c.
4	.4 c.c.	9.6 c.c.
5	.5 c.c.	9.5 c.c.

These tubes are permanently stoppered, sealed and labeled and kept for comparison. The number of staphylococci in a cubic centimeter of an emulsion of the same density as tube No. 5 is 50,000,000 approximately. Of course the tubes must be well shaken before the comparison is made.

After the emulsion has been standardized to the same density as tube No. 5 by its dilution with the salt solution, what is thought to be the proper doses are placed in sterile bottles, one dose in each bottle, stoppered with a rubber cork and heated for one hour to 60°-70° in a drying oven. They are then used as needed.

I will now describe the practical application of this method in fistulous withers and poll-evil.

The openings are made as clear as possible and some fresh discharge from deep in the sinus is pressed to the surface of each opening and cultures on agar slopes are made. We use very large agar tubes and inseminate as much of the surface of the slope as possible. At least four tubes should be inoculated, or, if there are several openings, a culture should be made from each, unless there are more than six, when additional cultures are probably unnecessary. If the discharge is very profuse and the animal particularly filthy, a small glass tube may be sterilized

by heating it quite hot, and when cool it is inserted into the bottom of the sinus, the pus aspirated by means of the rubber bulb from a baby syringe and the tube withdrawn. Filed nicks at several points in the tube are broken in succession and cultures taken from the contained purulent discharge at each point.

The culture tubes are placed in the incubator for 24 hours and the character of the growth ascertained.

Next sterilize a .5 per cent. solution of carbolic acid in an .85 per cent. solution of sodium chloride in distilled water, by boiling it in a test tube. As soon as it is cool a small portion is poured into one of the tubes containing the culture and the entire growth emulsified by rapidly rotating the tube between the fingers and by gently scraping off the colonies with a platinum loop. The emulsion is poured into a sterile test tube of exactly the same size as the nephelometer tubes and compared to tube No. 5. If it is denser than the nephelometer, add more diluting fluid. If less dense, take up the culture from another tube. This process is repeated until an emulsion containing all the growth of all the cultures and of the same density as the No. 5 nephelometer tube is obtained.

Next sterilize eight small rubber stoppers and vials by boiling. Label them from 1 to 7, and the last one "Stock." With a Detmers-Robinson or some similar accurately graduated hypodermic syringe take up a quantity of the emulsion.

If the organisms are chiefly staphylococci, place .4 cubic centimeter of the emulsion in the first bottle and increase the dose by .2 cubic centimeter in each succeeding one until a maximum dose of 1.6 cubic centimeter is reached. The "Stock" bottle is filled with the remaining emulsion, to be drawn upon in case the animal has not completely recovered by the time the last of the other bottles is used. It is well to add a little additional sodium chloride and carbolic acid solution to each of the smaller doses to prevent loss in injecting them into the animal under treatment.

If the infecting organism is a streptococcus, which grows much more slowly on agar, it may be necessary to incubate the

tubes for two to three days, or, in some cases, to make first a bouillon culture from the pus and incubate this for 24 hours. This is centrifugated and agar slopes are heavily inseminated with the precipitate and incubated 24 hours, and the vaccine prepared from these slopes. Fortunately this proceeding is very rarely needed, as in most cases a sufficient growth is obtained by the first described technic. The bottles are filled as before, excepting that the doses are .2 cubic centimeter, .4 cubic centimeter, .6 cubic centimeter, .8 cubic centimeter, 1 cubic centimeter, 1.2 cubic centimeter, 1.4 cubic centimeter, respectively. Never give more than 1.6 centimeter at an injection.

The bottles are then stoppered tightly with the rubber corks and heated at 60°-65° for one hour in case the organisms are staphylococci, and to 65°-70° for the same length of time when streptococci. The vaccines are then ready for use, and will keep for a long time.

The injections are given every five to seven days in the chest, between the forelegs and just under the skin. The entire contents of each bottle usually being injected in sequence according to its number.

If the first dose seems to aggravate the symptoms and the discharge increases, give the next dose in three or four days, but only give one-fourth of it. After seven days give the one-half of the No. 2 vial and reduce all other doses by about one-half. If the lesions are progressively drying after the first inoculation, wait full seven days between injections, but if the discharge begins to again increase at the fifth or sixth day, after an injection give the next inoculation at that time. I have not treated any animals afflicted with poll-evil alone by this method, but have had three with poll-evil associated with fistulous withers in which the poll-evils have made complete recoveries, and believe that the same line of procedure should be followed as in fistulas.

With the aid of students and several practitioners I have treated 31 horses with fistulous withers, with but two absolute

failures, and two that required some slight surgical interference. As these latter cases are instructive, I will say a word or two about them. Two of these horses had both poll-evil and fistulous withers and had an incredible number of sinuses simply streaming pus, situated from the poll to the middle of the animals' backs. Their necks were full of brawny indurated swellings, and the horses appeared to be cachectic to the last degree. In both cases the horses improved marvelously until about the seventh week, when every opening excepting the sinuses just over the withers was closed. These openings were then about the size of one's finger, and beneath them were cavities about as large as a hen's egg, at the bottom of which rough, coral-like vertebral spines could be felt. For three weeks the condition of one of these horses remained unchanged in spite of the injections. Then we enlarged the opening and curetted off the spines until only smooth, healthy bone was left. At the end of a week the horse was well. In the other case we let but one week pass after improvement had ceased and operated in the same way, and a very prompt closure of this last opening resulted. One of the failures was in a horse which had been operated on a number of times and in which the fistula had closed excepting a narrow sinus which extended forward about six inches and was just large enough to admit a probe. There was very little discharge. In spite of ten weeks' treatment this horse was not improved. I do not doubt but that there was a piece of dead bone at the bottom of this sinus, but the owner would not permit an operation. I do not think that this method of treatment will cure suppurative conditions without operation if there is a sequestrum of bone present, but it will put the animal in condition for operation and largely prevent suppuration in the cut surfaces. The other failure was a horse which I saw but once and prepared a series of vaccines. It was a rather bad recent case, and the veterinarian in charge of it told me that the treatment had no effect. I believe that this horse could have been cured by making another set of vaccines. If an animal does not show marked improvement after two or three injections, a new

vaccine should always be made. I have had to do this several times. Twenty-seven of the horses made complete recoveries.

The shortest length of time required for healing was two weeks, and this was a bad case of a year's duration, and the longest eleven weeks. Most of the cases lasted about seven weeks. In one case the fistula recurred in about seven months.

FOOT CANKER.—In this disease we have been unable, so far, to obtain a culture of the specific organism or to prepare a vaccine from cultures that proved useful for treatment. When one considers the filthy condition of such feet, manure and urine soaked and often infested with maggots, it is not astonishing to find the bacterial flora so abundant that unimportant saprophytes and other contaminating organisms make it very difficult to obtain the specific bacteria on culture. For these reasons we adopted the following very crude technic, but hope later to be able to isolate the specific organism and devise some practical method for its isolation for making autogenic vaccines or preparing a useful stock vaccine. This method is open to the serious theoretical objection of carrying tetanus, malignant edema, etc., but we have not been so unfortunate as to have such an accident. As such horses cannot be cured by the usual methods of treatment it is well worth the risk.

The foot is first opened thoroughly so that all pathological tissue is exposed. It is very important to get good drainage. Curettings from deep in the lesion are then taken, as these are much less liable to contamination. These are placed in a sterile mortar and ground as fine as possible, then covered with about four times their volume of .85 per cent. sterile salt solution and ground for a short time. This mixture is filtered through a piece of cheesecloth or very coarse filter paper and heated to 50°-54° for four hours and immediately injected. About 5 cubic centimeters are used for the first injection and the quantity gradually increased to 10 or 15 cubic centimeters, according to the results. The injections are made every 5 days. By this method all the organisms in the diseased tissue are used. It has the disadvantage of inaccuracy of dosage, and necessitates a fresh preparation

of material for each injection. Abscesses are more frequent as sequels than by the other method, but these are easily opened and drained and soon heal. By this method we have treated or directed the treatment of 13 cases, with four unimproved and nine recoveries. With but one exception the diseased animals were heavy draft horses. One of the cases which recovered had all four feet cankered and one had both hind feet diseased. Five of these cases were of one year's duration, and all had been unsuccessfully treated by surgical means. In very severe and destructive lesions there will be much contraction of the foot from the formation of cicatricial tissue after recovery.

We had one case of a compound fracture of the humerus in a dog which became infected and discharged very freely. The leg was put in plaster with a window over the wound. One injection of .5 cubic centimeter of the emulsion, standardized as above, of an agar culture from the pus stopped the discharge completely, but it began to recur in six days, when another injection was given and the dog made an uninterrupted recovery.

CANINE DISTEMPER.—The work on this disease was carried on with the collaboration of L. P. Garrahan.

Before we can understand what to expect from bacterial vaccines in this disease, it is necessary to say a few words concerning its etiology. Distemper, as was first shown by Carré,⁴ is a disease due to an organism which passes through a Berkefeld filter. We have confirmed this observation and have been able to clinically reproduce the disease with filtered blood serum if taken from an animal not later than 4 or 5 days after the beginning of the disease, but not when taken from dogs which have been sick for some time; with filtered nasal mucus diluted with .85 per cent. salt solution; with filtered extracts of the spleen when ground up in normal salt solution, and with filtered pleuritic exudate, although all of these filtrates were sterile on attempted cultivation. The filtration must be slow. We used for this purpose non-immune puppies of from 8 to 12 weeks of age. We were also able to reproduce the disease clinically in kittens, thus confirming the observation of Laosson,⁵ who first

demonstrated the unity of cat and dog distemper. The disease thus caused was transmissible by cohabitation to kittens and puppies. In very few instances was there any marked nasal discharge in the animals so inoculated, the disease usually appearing as its intestinal and nervous type in the puppies and as the intestinal and also in a few cases as the respiratory type of kittens.

In taking cultures from animals dying of distemper we were soon struck by the almost constant presence of the micrococcus of Mathis⁶ and Semmer⁷ in the skin pustules, nasal discharges, pneumonic lungs, pleural exudates, abscesses (in the pyæmic type in puppies), and in a few cases from the meninges when these were inflamed and adherent. We found it in a number of cases in the spleen, liver, kidneys and, in a few cases, blood, but only in those cases which showed suppurative lesions in the skin, respiratory tracts or some other part of the body. Many other organisms were met with, mostly bacilli, but not with the constancy of this micrococcus. The *Pasteurella Canis* of Phisalix⁸ and Lignier⁹ being quite common. The serum of dogs ill for a week or more with the respiratory type of this disease will agglutinate this organism in 1-200 dilution. The opsonic index to this organism is below .8 in all types of distemper.

Pure cultures inoculated subcutaneously into dogs not immune to distemper will always produce a phlegmon, followed by an abscess with sometimes a few pustules, resembling those seen in distemper, over its surface. Fed to dogs in capsule, it produces no deleterious results. Rubbed into the nasal mucous membrane of a healthy dog with a sterile wire, the results are negative. Having found that heavy doses of morphine greatly reduce the opsonic index of the dog to this organism, we tried injecting large doses of morphine in dogs and following this by subcutaneous inoculations with this organism. In a number of cases not only was the local reaction greater, but the dog also showed slight purulent conjunctivitis, slight purulent nasal catarrh, considerable fever and loss of appetite for several days. This condition never caused distemper in non-immune controls

placed with these dogs, and the inoculated animals recovered in a short time. Rubbed into the nasal mucous membrane of morphinized dogs, it caused in a few instances similar symptoms.

Large doses inoculated into the peritoneal cavity or pleural cavity will cause in many individuals a clinical picture of the mild respiratory types of the disease, not only in dogs but also in kittens and guinea pigs. In the latter animals the result is usually fatal, but the puppies and kittens all recovered. Non-immune puppies exposed to animals inoculated in this way developed no symptoms of the disease. One to three injections seem to produce a marked degree of immunity to the effects of its inoculation, but not to distemper when the animal is inoculated with distemper spleen. The virulence of cultures must be maintained if these results are to be obtained by its inoculation. We were able to recover this organism from every animal to which it was pathogenic. Rabbits inoculated intraperitoneally or subcutaneously die of septicemia and pneumonia. This organism produced no soluble toxin. Taking all of these facts into consideration, we have concluded that canine distemper is caused by an ultra-microscopic organism which lowers the resistance of the body of the dog to a number of organisms, but especially to the micrococcus of Mathis, which in turn produce the various purulent and inflammatory lesions, while the primary infection is responsible for much of the prostration and fever and most of the cellular changes and all of the nervous effects of distemper. However, in some rare cases, nervous symptoms may be due to a fibrinous or purulent meningitis caused by some complicating organism.

Inasmuch as a large number of cases of canine distemper die from pneumonia and other suppurative lesions, we concluded to try bacterial vaccines of the micrococcus of Mathis for its treatment.

Pure cultures of this organism were first obtained, but it rapidly loses its virulence under cultivation. Bacterial vaccines of this organism seem to be almost inert unless it is maintained at its maximum virulence, so we pass it through two or three

dogs or until it produces a very intense local inflammation and considerable constitutional effect in a dog. When this has occurred we make numerous cultures on agar slopes and prepare and standardize the vaccine to the No. 5 nephalometer tube in the same manner as for fistulous withers. One cubic centimeter is then placed in each of a large number of antitoxin tubes. After sealing these, they are attenuated at 60 centimeter for one hour. The dose is .5-1.3 cubic centimeter, according to the size of the dog. It may be repeated in 4 or 5 days. From the results of this treatment in the following series of cases we have concluded that it is probably of some value in combating and preventing the development of the purulent complications of distemper, and that it thus gives the animal a far better chance of throwing off the original infection. While the number of cases treated is not as large as we would wish, we believe that it is sufficient to be of some value. Several other prominent veterinarians have given this treatment a rather extensive trial and report very favorable results, but repeated letters to them have failed to persuade them to send me a complete report of their cases.

Dr. O. V. Brumley of the State University has very kindly aided us greatly in this work, and results in the cases treated by him are tabulated as follows. These cases received no other treatment except an occasional dose of oil.

CASES IN O. S. U. HOSPITAL.		Cure	Died
Respiratory	6 mild	6	..
	6 severe	3	3
	4 medium	3	1
Respiratory and Nervous.....	5 severe	1	4
Respiratory and Intestinal.....	1 mild	1	..
	1 medium	1	..
	3 severe	3	..
Respiratory and Skin.....	1 severe	1	..
CASES TREATED BY OTHER VETERINARIANS.			
Respiratory	1 mild	1	..
	4 severe	4	..
Respiratory and Intestinal.....	2 medium	2	..
	2 severe	1	1
Respiratory and Nervous.....	3 severe	2	1
Total	39	29	10

This is not the ideal treatment for distemper, but we believe it will be considerable aid. If I may be pardoned for departing from the general subject of my paper for a few minutes, I will describe a method which is still in the experimental stage but which seems to give great promise of producing a true antitoxin for use in connection with the bacterial vaccine. This method is based upon the same principles as those governing the production of a hyper-immune serum in hog cholera. A large-sized three or four-year-old dog and a kitten are inoculated with the spleen of a dog dying from acute distemper. If the dog becomes ill his recovery is waited for, but if he does not, and this is usually the case if an old dog is used as they are usually immune from a previous attack, the illness of the kitten is awaited. As soon as the kitten shows symptoms of the disease, another is placed with it, and in three days after the invasion of the disease the first kitten is killed by bleeding. The second kitten is then inoculated with the spleen of the first, and the blood obtained from the first kitten is defibrinated and the whole quantity immediately injected into the peritoneal cavity of the immune dog. As soon as the second kitten is ill the process is repeated. After the entire blood content of three kittens has been injected at intervals of 7 to 12 days the dog is kept for ten days and then bled under aseptic precautions; all of its blood is collected and placed in the ice chest until the serum has separated. This is then preserved with .5 per cent. carbolic acid and bottled in sterile antitoxin tubes in 10 and 15 cubic centimeter doses. We first tried immunizing the dogs by the blood of puppies sick with distemper, but gave this up after killing several dogs treated with this serum, the death being apparently due to a rapid hemolysis. We concluded that an isolysin was developed in the antitoxin dog and so tried using kittens.

This serum is best given by intraperitoneal injections of 15 cubic centimeters, followed in twelve hours by 10 cubic centimeters more. By this method, combined with the use of the bacterial vaccine, we have treated six puppies which had distemper as a result of inoculation with the spleen from a case of the disease

which recovered promptly while the control died, two severe, and one fulminating clinical case already down with chorea in a six-months-old puppy all of which promptly recovered. Dr. Planz also treated a severe case in a cocker spaniel by the serum alone which he reports as having made a rapid and complete recovery.

We believe that a little more experimental work will enable us to produce a practical and effective hyper-immune serum.

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8. Phisalix, *Societe de Biologie*, June 8, 1901.
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HORSE SHOWS IN 1910.—Atlantic City, N. J., March 23-26; Camden, S. C., March 30-31; Toronto, Ontario, May 3-7; Springfield, Ohio, June 7-8; Columbus, Ohio, June 14-16; Long Branch, N. J., July 24-29; Newport, R. I., September 2, 3, 5; Syracuse, N. Y., September 12-16.

IN the announcement of the University examinations yesterday it was stated that S. S. Cameron had qualified for the degree of Bachelor and Doctor of Veterinary Science. Dr. Cameron is the Chief Veterinary Officer of the Agricultural Department. It is interesting to note that this is the first degree of Doctor of Veterinary Science issued by a British University, although such degrees have been issued by Continental and American universities for some time past. The theses for which Dr. Cameron was awarded his degree included contributions upon hereditary unsoundness in horses, pleuro-pneumonia, contagiosa, bovines, epizootic amblyopia in horses, and tuberculosis in animals and man. The examiners were Professor Allan, Dr. J. W. Barrett and Dr. Cherry.—*The Age*, Melbourne, Victoria, Australia, Wednesday, December 8, 1909.

POISONOUS PLANTS DESTRUCTIVE TO LIVE STOCK, WITH SPECIAL REFERENCE TO A RECENT BOOK ON THE SUBJECT.*

BY D. ARTHUR HUGHES, LITT. M., PH.D., D.V.M., CHICAGO VETERINARY
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The study of poisonous plants has, until very recently, been neglected in our veterinary colleges. We are wont to talk of the congested state of the curricula as an all-sufficient excuse to cover the multitude of our negligences and to urge it forward as a buffer for critics. Certainly, if the curriculum is bursting its sides with the fatness of the subjects contained in it, that, forsooth, should be argument enough against adding more to its weight. Strange to say, we find, as time goes on, that every curriculum can be bettered and that the added subject is a help rather than a burden in making the course at once more useful to the student and the live stock interests which he serves.

Of all our negligences this neglect of the study of poisonous plants destructive to live stock is one of the worst. Indeed botany, properly correlated with materia medica, toxicology and the science of animal feeding, should have appealed strongly to those who had to do with the formation of veterinary curricula before so late a day as this. Here in the western half of the country are numerous animals dying, and causing heavy losses to stockmen, of locoism, delphinosis, veratrim, ergotism, lupinosis, hemlock poisoning, forage poisonings, lobeliaism and the like. The branch of toxicology relating to poisonous plants is, therefore, of great practical importance; indeed ranks with studies of infectious diseases, in the usefulness of the knowledge of it to the

* A Manual of Poisonous Plants, Chiefly of Eastern North America, with Brief Notes on Economical and Medicinal Plants, with Numerous Illustrations, by L. H. Pammel, Ph.D., Professor of Botany, Iowa State College of Agriculture and Mechanic Arts; published by the author, Ames, Iowa, 1910.

prospective veterinarian. There have been veterinarians like Drs. Nelson, Knowles and Glover, of Washington, Montana and Colorado, respectively, to recognize the value of the investigation of poisonous plants harmful to stock and to call upon the Bureau of Plant Industry of the Department of Agriculture, Washington, to assist in the inquiry. Sporadically, also, practicing veterinarians have endeavored to solve problems connected therewith; otherwise very little has been done by us to give the study its just recognition and to lay hold of remedial or preventive measures to cut down the losses caused by grazing on poisonous plants.

Not only has there been little investigation, at least little investigation bearing fruitage, there has also, consequently, been little written on North American poisonous plants in proportion to what has been written on contagious diseases, on operative surgery or any other popular branch of the science. Relatively there is a dearth of books and pamphlets bearing on toxic plants, though what we have indicate that we have not been slumbering in outer darkness satisfied to let the deadly juices of wild plants go on with their destruction of our flocks and herds. With the co-operation of experiment station veterinarians, agricultural college veterinarians, private practitioners and stock owners, it has been possible for four of the Federal botanists, Drs. V. K. Chestnut, E. Wilcox, A. C. Crawford and C. Dwight Marsh to gather much information on important poisonous plants known to cause much loss in the western half of the United States. For instance Chestnut has written: "Preliminary Catalogue of Plants Poisonous to Stock,"¹ "Principal Poisonous Plants of the United States,"² "Thirty Poisonous Plants of the United States,"³ "Some Poisonous Plants of the Northern Stock Ranges."⁴ Chestnut and Wilcox have written "The Stock Poisoning Plants of Montana."⁵ Crawford has written: "The Larkspurs as Poisonous Plants,"⁶ "The Poisonous Action of

1. Annual Report of the Bureau of Animal Industry, 1898.

2. U. S. Department of Agriculture, Division of Botany, Bulletin 20.

3. Farmers' Bulletin 86, U. S. Department of Agriculture.

4. Yearbook of the U. S. Department of Agriculture, 1900.

5. U. S. Department of Agriculture, Division of Botany, Bulletin 26.

6. U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin 11, Part I.

Johnson Grass,"⁷ "Barium a Cause of the Loco Weed Disease."⁸ Marsh has written "The Loco Weed Disease"⁹ and "Laboratory Work on Loco Investigation."¹⁰ Nor is this all, fugitive writings of interested veterinarians and others have appeared from time to time in our professional periodicals, yet without being able to fasten the information contained in them upon the minds of the masses of veterinary thinkers, though its practical value one would expect should harpoon the interest as does news knowledge on an infection among our animals. The literature on poisonous plants, in a word, is scattered; difficult to lay the hand upon, inaccessible, therefore, to the very persons who most need to have it at their fingers' ends—the veterinary undergraduate and the veterinary practitioner.

If either of these desire information on poisonous plants, they must betake themselves to the files of veterinary journalism; write to an experiment station for a bulletin; drop a line to Washington for a government document, or go guessing or groping in darkness like a fraternity neophyte for want of the light on strange poisoning which they should be able to have from a manual on poisonous plants. True that veteran English author, Veterinary Colonel Nunn of the British army, knowing by his long experiences in India the need of such a work, wrote a book on Veterinary Toxicology. But it is lean, has never so far as I can learn, been modernized, and has nothing in it whatever which is helpful to the American veterinarian, and practically the veterinarian at work in the arid regions of the West, who is desirous of information on plants destructive in a wholesale way to large numbers of animals. Again, Dollar's translation of Moussu's work on Animal Pathology contains a chapter on poisonous plants, which is a digest of some of the work done in this country, and refers to our poisonous plants. But what, pray, is a single chapter in a large book

7. U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin 90, Part IV.

8. U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin 129.

9. U. S. Department of Agriculture, Farmers' Bulletin 380.

10. U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin 121.

when the subject of poisonous plants demands a volume itself! Prolix as Doctor Lane's monumental work on veterinary medicine is, the sections in which he writes on poisonous plants are necessarily, from limitations of space and the largeness of the subject, congested with numerous topics on plant poisons all too briefly spoken of. To be properly treated the subject of poisonous plants demands a volume, where the writer is not hampered by limitations of space, and where he can treat the subject with that amplitude which justice to it requires.

We have no such book in American veterinary literature—that is a book expansive in treatment, entirely given over to poisonous plants destructive to live stock. The production of such a book would be highly advantageous to the profession. Such a book must be a product of the times. When events, notably the pressing needs as shown in wide destruction of animals, demand for investigation and the setting forth of its results, the avidity of student, practitioner and stockmen for information, call for such a volume, in the very nature of things it must be written. But who is to write it? He who is to do so must steer very carefully between two dangerous currents—the Scylla and Charybdis which both threaten to bring wreckage to his literary venture. On the one hand he must note that the purchaser must be the keen-minded veterinary student, practitioner and stockman lusty for practical knowledge directly applicable to poisonings discovered on the ranges. On the other hand the technical knowledge which is essentially botanical, must be whipped into shape by a botanist, but by a botanist who will not permit himself to hold fast to numerous details of plant terminology and who has some knowledge of veterinary physiology and pharmacy. If his work is not practically useful, that will be the Scylla to wreck it, for none will buy it; if it is loaded down with turgid botanical terminology, enough, that will be the Charybdis which will spoil its chances of success. How can one wonder that such a book has never appeared, as it must be written by a botanist with the close collaboration of veterinary scholars, or else by a veterinarian with the help of botanists.

Happily such a book is soon to come from the press. Though it may have its limitations, its omissions, though it may be criticised by those who know what such a book should contain and what the author should not have permitted to be put into type, it should, nevertheless, be welcomed as an honest endeavor on the part of its author to be useful to veterinarian and stockman and to scatter abroad the benefits which have accrued to him from a long study of harmful plants. Dr. L. H. Pammel, Professor of Botany in Iowa State College, is to shortly issue such a volume entitled "A Manual of Poisonous Plants," a work of some 750 pages with numerous illustrations covering most of the plants injurious to live stock in the United States. He has consulted much of the scattered literature, of which I have spoken, and gives in his book a compendium of the knowledge which he has gained. We have been complimented with a set of proofs of the first part of the work, and we are hopeful and expectant that the contents of the whole volume will be as useful as the chapters in the first part.

Inasmuch as we believe the book when it comes from the press will attract some attention, we make bold to summarize the contents of Part I. Chapter one is on poisons and statistics of poisons. Chapter two treats of bacterial poisons, ptomain poisoning, botulism or ham, sausage and fish poisoning, and maldism or pellagra. Chapter three is on dermatitic poisoning—poison ivy (*Rhus toxicodendron*) and the dermatomycoses. Chapter four deals with forage poisoning, ergotism and aspergillosis. Chapter five speaks of poisoning (internal) from ingestion of fungi—toadstools, for example, the deadly *amanita*. Then in chapter five the author speaks of miscellaneous plant poisonings: equisitis or poisoning from the common "horsetails," locoism and its wide destruction, lupinosis or poisoning from lupines, delphinosis or larkspur poisoning, lathyrismus or poisoning from vetches, aconitism or poisoning from hellebores, poisoning from umbelliferæ—poison hemlocks (*conium macula*), water hemlocks (*cicuta maculata*), fish and arrow poisoning, hydrocyanic acid poisoning from plants, mechanical injuries from plants—

wild barley, cheat grass, needle grass. And in the seventh chapter we find a long classification of poisons, their symptoms and antidotes, in which the author gives a beautifully clear table enabling a man to put his finger at once upon the antidote for any of the poisonings caused by poisonous plants in North America. If this chapter alone were sold in pamphlet form and could lie near at hand it would be found invaluable to the veterinarian whose work lies on the great stock ranges of the West. In these chapters Dr. Pammel, though he is not a veterinarian, has kept strictly in mind the veterinarian's needs and has given large place to diagnosis, symptoms, treatment and prevention of poisoning from plants. No doubt veterinarians who read these chapters may not find everything to their liking. Nor is this to be expected, even though the author has taken into counsel veterinarians in writing this part of the work. But I think that what has been written so far is reliable, and nothing else can be expected than that the opinions of veterinary readers and their comments will be gladly received by the author.

The book when published should give an impetus to the study of plants injurious to live stock. We are fortunate at last in having a handbook on the subject. In the process of time other books will appear on this branch of toxicology with the progress of the study. In such volumes for veterinarians more space will likely be given to the veterinary rather than to the strictly technical botanical side of the study. But the writing of professional books is not at all like the writing of vapid novels or fulsome melodramas—the production of to-day cast into the fire to-morrow. The facts must be ascertained by laborious processes of observation and experiment; the pages must be written with a cold-blooded demand for facts alone. Nevertheless, even in writing a book on poisonous plants or any other branch of toxicology, the presentation of the mere facts will not make a book readable or salable. The facts must be presented in such a manner as to attract the attention, inspire the mind, and at least carry a mild enthusiasm with them. Happy the man who, like Dr. Law in many of his pages, can marshal his facts in such pictorial shape as to

touch the imagination and so win interest in pathological conditions and stamp indelibly the pictures of them as they are, unfortunately, found in practice, upon the mind of veterinarians actual or prospective.

But the conduct of work on poisonous plants in veterinary colleges cannot be satisfactory if too much reliance is placed upon hand-books or text-books alone. Illustrations and printed matter are alright in their way. They, however, are in themselves like so many dead bones, without the unity of breathing life. The plants should be seen as they are in nature; if not in this fresh state, at least in mounted form in the herbarium—better if they are placed in permanent form on the walls of the pathological laboratory. In the lecture room, fresh specimens, dried specimens, or large lithographs picturing the plants as found in the field, all add zest to the study. Or, that failing, large photographs will assure, or lantern slides taken from photographs or colored to do duty for nature. The study of poisonous plants destructive to live stock can be made very inviting to the veterinary undergraduate. Men who come to our veterinary colleges are, or should be, men with a practical turn of mind; men with practical purposes. What they want is knowledge which can be made directly useful to them. A share of such useful information on poisonous plants injurious to animals may be had from the work, which, in the course of this article, has been reviewed.

COL. WENTWORTH MOSBY started his corn-cob a-puffing and told this one: "A confiding young preacher just out of a New England seminary received a call to a little village in the horse-raising district of Kentucky. The first Sunday, after introductions and allround handshaking, the senior deacon took him aside and asked him to offer prayer from the pulpit for Lucy Gray.

"The young parson did as requested, and repeated on the following two Sundays. On the fourth Sunday the deacon told him he needn't pray any more for Lucy Gray.

"'Did she die?' asked the parson solicitously.

"'No, she won,' replied the worthy deacon."—*New York Sunday World*.

THE ERADICATION OF THE CATTLE TICK

(*Margaropus Annulatus*).

By D. E. SALMON, D.V.M., MONTEVIDEO, URUGUAY, S. A.

In the effort to eradicate the *Margaropus annulatus*, or fever tick, much attention has been given to methods which require that the lands which are to be freed from the parasite should be left for three or four months without being pastured, in order that the young ticks may die of hunger for lack of a host upon which to feed. In some districts the land when not used for pasture may be utilized for hay or may be cultivated in field crops during this period, but in many regions where the land is nearly all used for grazing, it cannot be utilized in this manner. This is a great disadvantage, and if the land is fully stocked it cannot be closed against animals during the summer and fall, when feed is apt to be scarce and the pastures are indispensable.

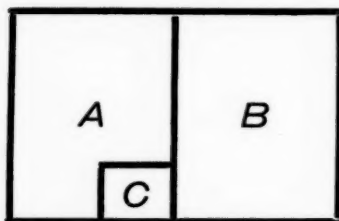
As these conditions obtain in Uruguay, and as it is impossible to dispense with the pastures, I have recommended a different procedure, which might, also, be applied with advantage in many parts of the United States. The leading idea is to adopt a plan of eradication which will permit of the constant use of the land for grazing, and which at the same time prevents renewal of the infection.

It is well known that the female of the *Margaropus* differs from that of other ticks in that it remains on one host from the time when in the larval condition it first attaches itself to an animal until when as a mature adult it falls to the ground to lay its eggs. This means that every female *Margaropus* must remain on the host a considerable period, the minimum of which is stated by the zoologists to be 21 days. Now, if we place cattle which are free from ticks in an infested pasture or range, and

remove them before the expiration of the period that is required for the development of the adult female, it is clear that there can be no renewal of the infection. Admitting that the observations of the zoologists are reliable, we can put cattle which are free from ticks into an infested field or range and take them out at the end of 18 days without having interfered with the process of destroying the infection by starving the young ticks on the pastures. All of the larval ticks which get upon the cattle during the eighteen days that they are in the infested field will be carried out of the field when the cattle are removed. By repeating this operation every eighteen days with a fresh lot of tick-free cattle, we can utilize the pasture during the entire time that is required to free it from ticks, without increasing the length of the period that is necessary to accomplish this.

The practical application of this method may be illustrated by a simple diagram:

Let A and B in the figure represent an infected pasture divided by a fence, and C a small enclosure for dipping or spraying



the animals. It is proposed to free the enclosure B from ticks while utilizing it as a pasture. To accomplish this it would only be necessary to dip the cattle before they were put into B, and to repeat this dipping every eighteen days while they remained

there. Unfortunately, dips which are efficacious in destroying ticks also injure the cattle more or less, and if repeated at too short intervals the injury becomes serious. To overcome this objection, the pasture is divided as shown and only half of the animals are dipped and put into B at one time. At the end of eighteen days, the cattle in A are put into C for dipping, the cattle in B are returned to A, and, finally, those in C are dipped and put into B. At the end of another period of eighteen days this operation is repeated.

By this method of procedure the interval between the dipping of each lot of cattle is thirty-six days, a period sufficient

with most dips to permit the entire recovery of the animals and the avoidance of injury. If, however, it is deemed best to give a longer period of rest, this may be accomplished by dividing the cattle into three lots. For this purpose it is not necessary to put a fence across the enclosure A, since the animals may be marked for identification, or the lots may consist of cattle of different ages or classes. With three lots of cattle, it would only be necessary to dip the animals once in fifty-four days, and only two or three times in all during the process of eradicating the ticks from B.

Now, having freed the enclosure B from ticks, a slight modification of the process will serve to accomplish the same result in A. The cattle are all dipped or sprayed and placed in B, where there are no longer any ticks. One-half or one-third of the animals are now placed in A for eighteen days, then dipped and returned to B, after which the second lot is transferred from B to A for eighteen days, and so on until the pasture A is also free from ticks.

A double fence would secure a successful result in a minimum period of time, but it is too expensive for general adoption. Many years of experience have shown, however, that the infection of Texas fever only exceptionally finds its way across a single line of fence, and, consequently, we may assume that the ticks only in rare instances pass through a fence. When this occurs, it will only serve to prolong the period of infection somewhat, and the larval ticks, which are the ones most likely to cross, will disappear during the following winter.

If the ground is sloping, ticks may wash from one field to another during rains and may in that manner cause a more serious infection. Whether or not it is necessary to adopt special measures against this danger will depend upon the intensity of the infection and the degree of inclination of the surface of the ground.

The most favorable time to begin these operations for freeing pastures from ticks appears to be in the Northern Hemisphere about the first of July, and in the Southern Hemisphere about the

first of January. The ticks will usually disappear in three or four months or before the following winter. At all events, the eggs should all hatch before winter, and the larval ticks if any have survived from the original infestation, or if any have gained access from adjoining pastures, should soon be destroyed by the unfavorable weather of winter in most parts of the United States. One of the pastures (B) may, therefore, be freed from infestation the first year, and the other (A) the second year.

A very important point in the procedure is to prevent the infection of the pastures with mature female ticks late in the autumn, since the eggs deposited by these may not hatch until the ensuing spring, thus carrying the infection over to the following year, and making it necessary to go through the whole procedure a second time.

It may prove in practice that after certain dips, and more especially with animals which are free from ticks and which are put into the infected pastures without such treatment, eighteen days is a longer period than the cattle can be left in hot weather without danger of the detachment of ticks which are capable of laying fertile eggs, in which case it would be necessary, of course, to reduce the period to 15 or 16 days. On the other hand, after dipping or spraying with crude petroleum, or oil emulsions, this period could be increased to 20 or 25 days, as the larval ticks would not adhere to the animals for several days after the dipping.

It is evident that unfenced pastures may also be free from infection by this plan if there is control of the cattle which have access to such pastures. Where such control is possible, the cost of fencing may be avoided, thus making it much easier to secure the adoption of the plan in any community. Public roads and commons may, of course, be treated in the same manner; that is, cattle should be free from infection when going upon such lands and should not be permitted to remain longer than eighteen days without being dipped. By such regulations, it appears possible to greatly facilitate the eradication of the *Margaropus* from infested farms, districts, counties or states.

SARCOPTES MANGE.*

By E. C. LIMBAUGH, MT. VERNON, O.

Mange, as we all know, means a skin disease of domestic animals, due to mites. The sarcoptes is a genus of the mite family. It being most common in the horse accounts for its frequency with which it is brought to our view. This is not at all a new field of exploration; however, on account of the nature of the disease, its rapidly spreading properties, its strong resistance to treatment, and its frequency in certain localities, it is worthy of thought and attention. Mange mites were discovered in domestic animals as early as 1672, so we can all at a glance see that this is not a recent discovery. The disturbances which these mites produce are of an exanthematous nature, effecting the epidermis and derma. They are microscopical in size, but intense in their work. The sarcoptes are tunnel-making mites, which burrow little galleries in and beneath the epidermis; here it hides, lays its eggs, from whence come the young. The period of incubation varies from four days to four weeks, depending on their location, and the resistance and condition of the host. The egg in the larvæ stage presents six legs and no genital organs, and is about the same size as it is at the time of hatching. In the second, or nymphal stage, it has eight legs, no genital organs, and almost the size of an adult male or female.

The third stage is the adult stage. They have now grown to be adult males and females. At this stage copulation takes place, after which the male dies. The female is now called a pubescent female; in some cases she burrows under the skin, and in other cases she stays on the scabs. She now mates again and becomes an ovigenous female, and lays from 12 to 15 eggs; then she dies. This whole cycle requires about fifteen days.

* Read before Ohio State Veterinary Medical Association, January 12-13, 1909.

Under the *sarcoptes* we have two sub-genera; under the first division comes *sarcoptes scabii equi* (of the horse), *sui* (of the hog), *vulpis* (of the fox), *caprae* (of the goat), *cameli* (of the camel), *canis* (of the dog), *ovis* (of the sheep), and *hominis* (of the man). Each of these is peculiar to its own species of animal. When removed to another animal, they will produce what is termed transient mange, which lasts but a short while. *Sarcoptes* of the dog and fox are interchangeable; mange from the fox will produce the same in a horse. Occasionally that from a dog may be transferred to man; that from a horse may also be transferred to man.

The second division of *sarcoptes* subgenera is of a much smaller variety, known as *sarcoptes minor*. This includes *sarcoptes cati* (of a cat).

In all cases the female of the *sarcoptes* family, after copulation, burrows under the skin, lays her eggs, and then she dies. The rapidity with which they multiply is astonishing. If but one pair, namely, a male and female, were transmitted to a horse, the aggregation of the young in ninety days would number 1,500,00. The sarcoptic mites have less vitality than any of the non-burrowing mites. They die in one hour when kept apart from the skin in dry air at a temperature of 145° F. They live from 12 to 14 days in the damp air of stables. On the skin of a dead animal lying in a damp stable they have been known to live from 24 to 28 days. Of the mite family, the *sarcoptes equi* is the one which is most frequently brought to our notice. The manner of transmission of these mites from host to host varies greatly, according to the surroundings. The most common ways of spreading this disease are by careless grooms about the barn, by currycombs, brushes, bedding, blankets, harness, stalls, etc.

Some time after exposure, the animal is brought to our notice, with the history from the owner that he doesn't know what is wrong with his horse; he believes that he is either lousy, or has the Texas itch, as the layman calls it, or that his horse has been lying in a dirty stall and has manure scald all over him;

he complains of his horse almost tearing the stall down; tears up his stable blanket; with this history, look out.

On examination we find the following symptoms: You find lesions on the skin, accompanied by intense itching; as the parasite begins to work, it sets up this irritation; as they increase and multiply, the itching becomes more intense; this is a very important symptom. You will note a tendency for the disease to spread and invade new territory. The itching is most noticeable in hot stables after night.

On scratching the horse over an infected region, he will lean towards you, work his upper lip, and very often almost falls to the ground as you curry over the itching areas. If the horse is watched for a few moments, he will turn his head and bite himself wherever he can get to the affected locations with his teeth.

The two principal factors taken into consideration to make a positive diagnosis are the intense itching and the finding of the mite itself with the use of the microscope. The result of the irritation will form erythema, papules, vesicles, pustules, crusts and scabs.

From the biting and rubbing which the animal does itself we may get an artificial eczema. Later on he will show alopecia; the hair coat appears moth-eaten; skin becomes thickened and wrinkled. It will become dry, scurvy-looking in patches; other places being raw-looking sores from the effects of the irritation.

These lesions may be found anywhere on the body except below the knee and hock. They are most frequently found on the surface of the ventral sternal region, on the lateral and ventral cervical, on the dorsal lumbar, and ventral abdominal regions.

The course of this disease is always chronic. The duration depends upon the age of the host, the power of resistance, the severity of infection, condition of the surroundings, and the care which the animal receives.

PROGNOSIS.—In middle-aged animals, favorable; in young and old animals that offer less resistance, unfavorable. They usually die from cachectic conditions.

TREATMENT.—Isolate all animals showing no symptoms of the disease, placing them into separate barn; quarantine the infected barn, disinfect same, sterilize brushes, blankets, harness, etc.; do not allow groom to go from infected to non-infected barn. First wash or bathe the affected horses with soap and water; scrub with a brush in order to loosen all the scurf and scales; then bathe all over with a 10 to 15 per cent. solution of creolin; do this every second or third day. If in the summer time, tie the horse in the sun for an hour before bathing, as the mites are found to be more numerous on the skin surface, due to the external heat, in that manner being able to destroy more mites by the bath and shortening the attack. This treatment must be kept up every second or third day for two weeks, and then should be done at least twice a week for thirty days. In the meantime the stalls should be occasionally whitewashed and clean bedding be kept in them. With proper attention, a permanent cure may be effected in from fifty to sixty days.

A LARGE ORDER.—Wanted.—A steady, respectable young woman to wash, iron and milk two cows.—*Home Chat.*

HATS OFF TO THE MULE.—I know the mule is much maligned by many who talk and write about him, but there is no animal that is easier to handle if treated kindly. Not long ago I was talking to a successful grower of mules, who said that he would rather break a team of mules than a team of horses, the mules being not nearly so nervous and steadier goers. Kindness is his policy in dealing with them. There is no doubt that the mule is as susceptible to decent treatment as any other animal, and it is not necessary for a man to be armed with a club when driving a span of mules. I have seen mules, whose dispositions had not been warped by brutal treatment, so dependable that the owner was able to drop the lines at any time and do whatever work he had in hand without fear of their running or raising a disturbance. So I take off my hat to the mule whether he be from Missouri or any other state in the Union, for he is the farmer's friend, his burden-bearer, and a money-maker wherever you put him.—W. D. Neale in *Farm and Fireside.*

FURUNCULUS.*

BY FRANK R. YOUREE, M.D.V., NASHVILLE, TENN.

The disease universally known and recognized as furunculus is a local staphylococcic infection, carbunucular in character, presenting all the pathognomonic symptoms of other acute inflammatory processes.

HISTORY.—It was recognized in Montreal, Can., as far back as 1890. Many cases were treated at Montreal Veterinary College, of which some terminated seriously while others made a nice recovery.

The next place that I have any knowledge of it being found was in Minneapolis, Minn., about the year 1902, at which time it was brought to the notice of the veterinary profession by Dr. C. C. Lyford and others.

It was probably brought to this state about two years later by shipments of horses from the West or Northwest, and has been more or less prevalent throughout this section of the country for the past five years.

Cases have been annually reported in the counties of Davidson, Williamson and Maury. During the past summer more cases have been seen than in any previous year.

At least 100 cases have come under the observation of the practitioners in the city of Nashville, and no less than 50 cases made their appearance on one prominent stock farm in Maury County. Many of the above-mentioned cases were observed by the writer and their progress and termination carefully noted.

Some writers on the subject seem to think it is more prevalent in cold weather than warm, but from my experience I find it the opposite. During the hot months of June, July and August

* A paper read before the Tennessee Veterinary Medical Association—Annual Meeting, Murfreesboro, November 18, 1909.

there was a great deal of complaint among the horse owners, but since it is cooler no cases have been reported or observed.

None but equines are susceptible to this type of furunculus infection.

SYMPTOMS.—The lesions are usually noticed between the fetlock and hoof as a general thing, and start from a slight abrasion of the skin. Any one not acquainted with the disease would probably think at first glance that it was where the animal had calked itself or struck its leg against a stone, or from external injury as the result of kicking, since the disease is more common in hind feet than fore ones. Others would mistake it for scratches. When noticing it later the practitioner would see that some severe infection was present, as the tissues become more angrily inflamed, characterized by some swelling, accompanied by pain and evidence of beginning slough which is of a gangrenous nature in the surrounding tissues, destroying not only the skin but the subcutaneous tissues, including blood vessels, nerves, ligaments, etc., down to the bone itself, and sometimes terminating in open joints.

This causes great pain, manifested by acute lameness.

After the slough has been removed the central portion seems to be necrotic, while the ragged edges are very sensitive and continue to ulcerate, thus enlarging the wound. If not checked it will extend upward and cause a thickening of skin and underlying tissues resembling a case of lymphangitis.

On account of the irritation and fretful condition of the wounds the animal will often nibble at it, and in case there is some abrasion of buccal mucous membrane the infection may extend into the mouth, taking the same course as it would around the ankle and coronary band. As the disease progresses, abscesses will form in the surrounding tissue, most frequently above the original wound.

The more extensive the sloughing the more pain there will be present, and the animal will be seen swinging the leg backward and forward and pawing more or less. Oftentimes there is a

rise of temperature due to systemic disturbance and pain. After the surrounding gangrenous slough is completed there is often a "core" left similar to that found in the ordinary carbuncle. This "core" becomes detached and gradually sloughs out. This disease rarely ever makes its appearance above the hocks and knees.

TREATMENT.—In the treatment of furunculus, numerous recommended remedies have been thoroughly tried, and I am free to say that the most of them have proven to be worthless or worse than worthless as curative agents in controlling this disease.

After due trial and careful observation, my conclusions as to treatment are about as follows:

In treating this disease the practitioner should not use any preparation which will make a crust or scab over the wound, as this seems to hold the infection by preventing proper drainage and sterilization which allows the germs of the disease to live and multiply.

The best results have been obtained by soaking the affected foot or leg in a 1-2000 bichloride mercury solution for thirty minutes each day. After drying, an application of one part of tincture of iodine to five parts of tincture of iron should be applied to the wound.

The iodine and iron should be applied several times during the day with a mop or brush. In cases where the infection has begun to spread to the surrounding tissues—not in close proximity to the open wound—the whole affected or swollen area should be painted with tincture of iodine of the regular official strength. This will aid in checking its progress.

Further treatment consists of good hygienic surroundings, clean stall, fresh air and keeping system in good condition.

No exercise should be allowed. After the infection appears to be well under control and the wound healing by rapid, healthy granulation, there should be some antiseptic healing preparation used. Preferably, bismuth-formic-iodide powder, or a powder

made by mixing acetanilid, powdered, 2 ounces; boracic acid, powdered, 2 ounces; hydrastis canadensis, powdered, 4 drs.

There is no sure preventive, however the affected animal should be isolated. The health and surroundings of the well ones should be improved by keeping clean stalls and washing the feet and legs when muddy.

The legs of the exposed animals should be washed from the knees and hocks down once daily with a 1-2000 bichloride mercury solution.

The prognosis varies greatly from that of simple disfiguration to death. Death seldom occurs when patient is immediately subjected to proper treatment. Especially is this true provided there are no new seats of infection.

Quittors, open joints, loss of hoofs, thickening of limbs and large scars are the most frequent sequelæ.

When death occurs it will generally be from exhaustion, hæmorrhage or sepsis.

AN ACCOMPLISHED COW.—Man wanted for gardening, also to take charge of a cow who can sing in the choir and blow the organ.—*Home Chat*.

AT the recent meeting of the New York State Agricultural Society, Commissioner of Agriculture, Raymond A. Pearson, was elected president.

A \$280,000 HORSE.—The most valuable horse in the world is said to be Bayardo, an English three-year-old, whose owner cares more for the horse than money, having recently refused an offer of \$280,000.

HORSE SHOW DIRECTORS.—Stockholders of the National Horse Show Association have elected the following members of the Board of Directors: Alfred G. Vanderbilt, E. T. Stotesbury, Frederick M. Davis, William H. Moore, Reginald C. Vanderbilt, J. W. Harriman, Robert A. Fairbairn, M. L. Akers, C. W. Watson, Roy C. Gasser, William G. Loew, G. Mifflin Wharton, Henry Fairfax, John A. Spoor, Arthur G. Leonard, Colin Campbell and J. H. Childs.

REPORTS OF CASES.

FATAL SKIN DISEASE IN HORSES.*

By WILLIAM SHEPPARD, M.R.C.V.S., Sheepshead Bay, N. Y.

The cases in question all occurred on a farm at Sheepshead Bay, about one-half mile distant from the Sheepshead Bay race track. The barn in which the animals were stabled was of an old-fashioned type and had been built many years.

The first case was brought to the notice of the owner on Sunday, August 16, 1908, about 6 o'clock in the morning, when the horse became restless and feverish, with continual shaking of the head and champing of the jaws. By noon a slight eruption appeared on the left nostril which was rubbed until it became raw. The animal was becoming more irritable, but ate a bran mash and drank some water.

At 6 p. m. the eruption extended over the eye and the animal showed a temperature of 103° F., and was becoming more irritable, pawing, kicking and refusing to eat, but drank a small quantity of water. The restlessness continued all night and at 6 a. m. the eye was closed, the nostril very badly swollen and the eruption extending to the ear on *the left* side. Except for a slight swelling the right side remained normal. The horse had become very ugly, refused to eat or drink, and treatment was administered with great difficulty. Temperature was $103\frac{3}{4}$. By noon the horse had become crazy and unmanagable and the attendants were unable to give treatment. The left nostril and side of the head was entirely raw from the rubbing, moisture coming from its surface of a reddish color, apparently blood and serum mixed. The delirium continued during the night and the animal seemed to be growing weaker. At 4.30 a. m. on Tuesday, the 18th, the animal died in great agony. Shortly after death a white, pus-like exudate came from both nostrils, left eye and left ear. This case was diagnosed as a form of erysipelas or eczema and treated as such.

*Read at the February meeting of Veterinary Medical Association of New York City.

CASE NO. 1.—Was taken to my infirmary by Mr. Ryder's man on the morning of the Sunday named, between seven and eight o'clock. I examined this horse's skin with a powerful glass; could see nothing abnormal. I gave him a dose of physic and applied an ointment to the skin composed of salicylic and carbolic acids, with vaseline. I saw him that evening at Mr. Ryder's stable, and twice a day until he died. On the morning of the second day, finding him no better, he was given, so long as it was safe to do so, medicinal doses of Fowler's solution of arsenic, the skin cleansed, and a 5 per cent. solution of irisol applied. The evening of the second day his temperature was $106\frac{1}{5}^{\circ}$ F.

CASE NO. 2.—On August 28, at 5 a. m., twelve days later, another horse was noticed with the same symptoms as shown by the first case, and I was called in at once and treated the nostril with an antiseptic and sedative wash or lotion. The horse had a temperature of $103\frac{2}{5}$, but ate food and drank water. By noon of the same day an eruption developed on the left nostril and the horse was becoming very nervous. Dr. Ackerman was called in consultation. Dr. Ackerman was of the opinion that this was a case of rabies, and that the previous one had also been the same, and that they had both been bitten probably by the same dog, only this one had resisted longer. There had been a rabid dog killed in this neighborhood some time previous. Neither horse had shown marks of a bite. Changed the external treatment from a cooling lotion to an iodine treatment and the internal treatment to fever medicine and sedative, but without effect. I was of the opinion that this also, was a form of erysipelas or eczema.

We at that time, with considerable danger and difficulty, succeeded in snipping out some patches of skin from these irritable and diseased areas and sent it to the Brooklyn Diagnostic and Research Laboratory for examination, both microscopical and bacteriological, but this gave negative results.

At 6 p. m. the condition of the horse was about the same as at noon, except the eruption was slightly increased in area. The animal ate and drank and submitted to treatment. During the night he was much quieter than the other horse had been, but this was probably due to the animal being of a quieter disposition. By 6 a. m. the eruption had extended over the eye and the left side of the head was swollen and raw in appearance, being

practically the same as Case No. 1. The fever at this time was $103\frac{2}{5}^{\circ}$. Some water was drank but food was refused. At noon the eruption had extended to the ear and the left eye was closed. The right nostril was normal except for slight swelling. Treatment was administered with difficulty, as the animal had become ugly, biting and kicking at anything within its reach. At 6 p. m. the animal died in great agony as the other one did, and the same white discharge came from the eye, ear and nostrils.

CASE No. 3.—Shortly after (within a couple of weeks) another case developed. This horse had been worked all the morning and ate its dinner at noontime. When brought out of the stable for the afternoon's work it showed the first symptoms that the others had shown, only they developed more rapidly and were more violent. This case was shot by the owner without giving it any treatment.

CASE No. 4.—On December 28, 1909, or sixteen months after the first outbreak, another horse developed the same symptoms as shown by the others. This case was a dark bay gelding, ten years old, and weighed about 1,200 pounds. This horse had been used by the owner on the morning of the 28th and ate its dinner as usual. The first symptom was the intense itching of the left nostril, which it rubbed continuously, becoming more violent as the disease progressed. The horse died about four o'clock on the morning of December 29, or sixteen hours after showing the first symptoms.

SOME GENERAL NOTES REGARDING THE CASES.—In all the cases the first symptom has been the rubbing of the left nostril.

Temperatures at first have been 103° F. and have gone as high as 105° F. or $106\frac{1}{5}^{\circ}$ F.

All the horses affected were out of different teams and had not been together in any way.

The first three cases had been fed on timothy hay and oats; the last case on corn stalks and oats.

In all cases it was necessary to securely barricade the stall to prevent the animal from tearing it down by its violent pawing and kicking.

REMARKS.—The hay consumed by these horses was also fed by Mr. Ryder's neighbors, the pastures being owned jointly by

them. The oats fed to the 1908 cases were purchased from a grain merchant from whom I procure my grain. This same brand of oats was fed by many persons in this locality.

The horse that died last December had been fed some moldy corn off the cob, but the others now living ate the same.

All the abraded surfaces I noticed existed on the dead horses' heads and necks, especially the heads and nostrils. I noticed none on the carcasses further back.

POST MORTEM.

By JOHN J. MCCARTNEY, D.V.M., Brooklyn, N. Y.

Through the courtesy of your president, I have been asked to present to you the results of the post mortem of the last or fourth case. To my mind the title, "Fatal Skin Disease in Horses," needs to be followed by a large-sized question mark, as there seems to be something deeper than the skin to cause such fatal results. By the symptoms that have just been presented, one might be justified in being suspicious of rabies, anthrax or the so-called corn-stalk disease of our Western states.

When the last animal was taken with the disease, Dr. Sheppard called Dr. Ackerman in consultation over the telephone and they came to the conclusion that it would be best to destroy the animal and hold a post mortem to ascertain, if possible, the cause of the disease. As it was impossible for Dr. Ackerman or Dr. Sheppard to attend to the matter at this time, I was asked by them to do it for them.

Arriving at the farm the following morning I found that the animal had died a few hours previous and lay in his stall on his left side. From external appearances everything seemed to be perfectly normal except the left side of the nostril, from which the hair had been rubbed, leaving a raw surface about 6 or 8 inches in diameter. The owner stated that the reason why a larger area had not become denuded was probably due to the fact that the animal had been tied so that he could not get at it to rub it, and that he had been ill for a shorter length of time than the other cases.

The post mortem was made with a view of ascertaining several things. First, as in all post mortems, to observe macroscopically anything abnormal with the organs, and secondly, to

obtain, for microscopical and bacteriological examination, such tissues as the blood for the examination for anthrax organisms, the brain for the negri bodies of rabies, and sections of other tissues that might be an aid in the diagnosis. As soon as the cadaver was cut into, some of the blood was caught in a clean jar. Except for a slight congestion of one of the lungs, the organs of both the pleural and abdominal cavity seemed to be normal. The nasal cavity was red and congested, but no marked lesion could be found.

The brain was removed and placed in glycerine and shipped, with the jar of blood and sections of the lungs, liver and kidneys, to Dr. V. A. Moore, of the State Veterinary College, to see if he could locate the cause of the trouble by means of a microscopical examination.

Under date of January 6 the following letter was received from Dr. Moore:

NEW YORK STATE VETERINARY COLLEGE
at Cornell University,
Ithaca, N. Y.

January 6, 1910.

Dr. JOHN McCARTNEY, 167 Clymer St., Brooklyn, N. Y.:

DEAR DR. McCARTNEY—I received your letter on December 29 and the specimens a day or two later. The symptoms you give are not very indicative of any infectious disease, although they might occur with both rabies and anthrax. We were not able to find evidences of rabies. We procured cultures from various organs, and some are interesting organisms which we are trying to identify, and in addition to that we obtained cultures with colonies resembling anthrax. We are making inoculations and in a short time will be able to determine positively whether or not anthrax was present. If we learn anything definite in this respect I shall write you further.

(Signed) V. A. MOORE.

Again, on January 18, 1910, Dr. Moore writes:

Dr. E. B. ACKERMAN, 167 Clymer St., Brooklyn, N. Y.:

DEAR DR. ACKERMAN—In regard to the disease in horses I am at a loss to know what to say. We have isolated an or-

ganism that resembles very closely that of anthrax and which we thought was anthrax, from the original culture. When we get this in pure cultures, however, it fails to show any pathogenesis, although it does resemble anthrax to a considerable extent. The other organism seems to be closely related to the colon bacillus, and I do not believe it can be accused of the cause of the trouble. I think I wrote Dr. McCartney that we failed to find any evidence of rabies. This leaves us, as you see, in doubt as to the cause of this trouble. We have spent a considerable time in studying the two organisms found, but have been unable to find that either of them possessed any disease-producing power whatever.

Sincerely yours,

V. A. MOORE.

As to the exact cause of the disease we are still left in doubt, but from the bacteriological results we are positive that there is something deeper than a mere skin disease, which we may be able to identify later on should any more cases develop.

TUBERCULOSIS IN A FAMOUS COW.

By B. F. KAUPP, M.S., D.V.S., Pathologist Colorado Agricultural College.

Jollie Johanna, after winning the grand championship of Holsteins at the St. Louis world's fair, was presented by the owner to the Animal Husbandry Department of the Colorado Agricultural College. She was fifteen years old at the time she was destroyed a few days ago.

Jollie Johanna's record as a milk and butter fat producer was as follows: 5,064 pounds of milk in 90 days; 169.99 pounds butter fat in the same length of time.

Since she has been owned by the college she has been tested twice a year for tuberculosis, with the balance of the college herd. She reacted each time till next to the last test. At the last test she was given 5 c.c. of tuberculin, which resulted in a maximum rise of temperature of 105.2°.

Old Jollie was kept in quarantine, instead of being slaughtered by the college, for two reasons: First, her calves were very valuable; second, for experimental purposes.

Only one of her calves contracted tuberculosis, and this calf not until it was four years old.

As Jollie's usefulness had passed, it was decided to kill her for the purpose of demonstrating the lesions of tuberculosis to the farmers' short course which was convened the first week in January at the college.

The autopsy was witnessed by the students of the veterinary department of the college, as they had observed her react on several occasions. One and one-half ounces chloral hydrate was administered intravenously, which produced anesthesia in less than one minute.

AUTOPSY.—*External Appearance*.—The carcass was fairly well nourished. Superficial lymph glands not palpable. Right knee was slightly swollen. Upon incision it was found in a state of chronic inflammation. No tubercular lesions could be detected macroscopically. Prerural and prescapular lymph glands were normal.

HEAD.—The post-maxillary lymph glands of the right side and the submaxillary lymph glands of the same side showed one or two tubercles each. The post-pharyngeal and superior cervical lymph glands were normal.

THORAX.—There were miliary tubercles throughout the substance of both lungs. In no case were the nodules larger than a hazelnut. All contained the characteristic yellowish, cheesy pus with gritty cut. The largest number of tubercles were around the peribronchial lymph gland. These lymph glands were also tuberculous. The mediastinal and prepectoral lymph glands were free from tubercles as well as the heart and both plurae. Between the seventh and eighth ribs on the left side and between the eighth and tenth ribs on the right side were located three or four sarcomas about the size of a hazelnut. In the substance of the large lobe of the left lung was also a sarcoma about the size of a hulled walnut.

ABDOMINAL CAVITY.—The uterus, ovaries, kidneys and spleen were normal. The sublumbar, popliteal, post-mammary, renal, portal and lineal lymph glands were normal. Many of the mesenteric lymph glands contained miliary tubercles up to the diameter of a lentil, the glands were not enlarged, and, aside from the presence of the tubercles, appeared normal in color.

Two small tubercles were present in the left adrenal gland. The gland was normal in size. One tubercle was found in the wall of the stomach. The peritoneum was normal. A large sarcomatous mass lay just posterior to the face of the liver, touching that gland at the point where the portal vein enters the liver. In the omentum on the superior face of the rumen were a half-dozen sarcomatous nodules up to the size of a hazel nut. These lay close to the attached portion of the omentum and were surrounded by fat necrosis. Diagnosis on all lesions was confirmed in the laboratory of pathology.

ANATOMICAL DIAGNOSIS.—Tuberculosis of the right sub-maxillary and post-maxillary lymph glands, the peribronchial and mesenteric lymph glands, the left adrenal gland, and both lungs.

Sarcomatosis of the inner walls of the thorax, left lung and omentum. Chronic inflammation of left knee.

TWO INTERESTING CASES OF ECZEMA.

By FREDERICK R. WHIPPLE, M.D.V., Morgantown, W. Va.

The following histories will no doubt be of interest to the readers of the REVIEW, and I take pleasure in presenting them.

The first was a case of eczema of heels in a trotting stallion. It was the worst case I have ever seen in my experience as a veterinarian. I informed the owner that regular work would have to be stopped for at least two weeks, although I thought privately that it would take nearer four weeks to effect a cure.

The course of treatment was as follows: Glycerine was rubbed well into the legs to soften all scabs and remove the dirt. This was followed by a cleansing with warm water and castile soap and the parts dried with cotton. A 50 per cent. thigenol ointment was then applied, over which was placed a roll of cotton held in position by a bandage. This was allowed to remain twenty-four hours, and when it was removed improvement was found to have progressed so rapidly as to astonish all who witnessed it. All tenderness was gone, swelling of the legs had subsided, and the surface of the skin appeared to be in a normal condition. On the second day the animal returned to its regular

work of eight miles daily, never taking a sore or lame step. From this on thigenol ointment 10 per cent. was applied twice daily without cotton or bandage for three days longer, when all treatment was discontinued.

The second case was that of eczema in a silk poodle dog, which I can best describe by saying that when the animal was brought to me I recommended that it be destroyed, but to this the owner would not consent, preferring that some effort, at least, be made to effect a cure.

At first I tried the conventional treatment with zinc oxide externally and arsenous acid internally, but with very little improvement in two weeks beyond slight relief from the intense itching.

Thigenol treatment was then begun, both externally and internally, all other treatment being discontinued except ext. gentian in grain doses three times daily, as a means of stimulating the appetite. Externally thigenol was applied twice daily in the following combination: Thigenol, $\frac{1}{2}$ oz.; resorcine, 20 grs.; glycerine, 1 oz.; aquæ q. s., 3 ozs. Internally one-half teaspoonful of a 25 per cent. solution of thigenol in water was given twice a day.

After the second application of the ointment the animal was never seen to scratch; the appetite returned after the third day, and in nine days the dog was returned to its owner completely cured. Three pounds in weight had been gained and the hair was starting to grow afresh.

A CASE OF DYSTOKIA.

By L. V. POLK, D.V.M., Sherburne, N. Y.

On the morning of February 7, I was called, with Dr. Jas. Foster, of Sherburne, on a case of dystokia. The cow was a fine big Holstein, pure-bred, weight about 1,400 pounds. The owner reported that she had been served February 4, 1909. The calf presented anteriorly with the head and left forefoot turned back. These were straightened and the calf came to the hips, but it was impossible to bring it further. We cut through the body just back of the last rib and deviscerated the calf and finally,

by cutting through both sides of the pelvis, brought out the hind parts. Immediately following came twenty-five balls of hair. After dinner we flushed the uterus with a disinfectant and found nothing peculiar. The next day the owner said the cow had tried to "cast her withers," but the uterus which she had tried to eject proved to be another calf weighing about fifteen pounds.

The first and largest calf weighed 167 pounds without the abdominal viscera, which is a record in this section. The cow is now doing nicely. I would be pleased to hear some explanation of the hair balls following the first calf. This cow carried these calves from February 4, 1909, to February 7, 1910 (one year and three days).

THE VETERINARY SURGEON'S WORK.—During a discussion of general topics in a primary school the teacher asked the question, "What is a veterinary surgeon?"

"One who doctors old soldiers," was the ready reply of a boy of five years.

"I'LL BACK THE FIELD."—A Salvationist was holding forth close to the course at Belmont Park. "Yes, my friends, our lives are in our hands, and of our making, but when we are under the sod we don't know where we are."

"The glorious uncertainty of the Turf," remarked an old 'un as he squeezed through the turnstiles.—(*Bit and Spur.*)

HAMPTON, IOWA, February 8, 1910.

Editors AMERICAN VETERINARY REVIEW:

DEAR SIRS—Enclosed please find check for renewal of REVIEW for coming year.

Couldn't get along without the REVIEW and keep anyway near up-to-date.

Respectfully yours,

A. L. Wood.

CALIFORNIA, SEPTEMBER 6-7-8-9, 1910.

CORRESPONDENCE.

OAKLAND, CAL., January 29, 1910.

Editors of the AMERICAN VETERINARY REVIEW:

GENTLEMEN—Were we gifted with the possession of a vocabulary of a Webster it might be possible for us to convey to you in appropriate terms, on behalf of the veterinarians of the West, expressions of the highest appreciation for the kind sentiments contained in an editorial from the pen of your Dr. R. W. Ellis, entitled, "Welcome to the Golden West," which appeared on page 419 of the January number of the AMERICAN VETERINARY REVIEW; but only being endowed with a very ordinary supply of words, we are unable to adequately express our appreciation further than to say that we thank you.

We believe that there is something more in store for those who are fortunate enough to attend the next meeting of the American Veterinary Medical Association in California, further than the great privilege of taking part and listening to the splendid scientific addresses and demonstrations which are so characteristic of the meetings of the national organization; something more, even, than the social and intellectual enjoyment of meeting talented people from all over the world; there is, in fact, a great object-lesson to be derived.

Less than four years ago the great metropolis of the West, San Francisco, which we, laying aside all local prejudice, considered to be the greatest and grandest city of its size in the world, was visited by fire and simply wiped off the map. Yet, notwithstanding this total destruction and the fact that such a short period of time has elapsed, this great city has sprung up from the ruins like a mushroom over night, greater and grander than ever.

We firmly believe that those whose good fortune it will be to witness this, the most sublime transformation of modern times, and who can personally view what has been accomplished by the indomitable courage, and the untiring and irrepressible energy of our Western people, will undoubtedly leave here im-

bued with some of the same spirit that has been responsible for the rebuilding of a magnificent city in a few short years.

Of course, the rapid prosecution of the work of reconstruction has also been favored by meteorological conditions. Our California climate permits of outdoor work three hundred and sixty-five days in the year. The intense humid heat of summer and the extreme cold of the winter experienced in some portions of the United States are entirely absent. In fact, our climate simulates very closely that of Mediterranean Europe and Africa, which is considered by those who have never visited California to be par excellence, the most beautiful and pleasant known. Yet this country can also be likened unto a Grand Riviera, furnishing as it does a congenial home for the orange, the lemon (fruit) and the grape, and where even the ostrich and the date palm flourish as they do in their native soil.

While on the subject of the San Francisco fire, permit us to state at this time that we have secured for our headquarters next September the Palace Hotel. This world-renowned hostelry, which was completely destroyed by fire and dynamite during the progress of the above-mentioned conflagration, has figured very prominently in the making of Western history. In fact we could go on indefinitely and relate innumerable historical facts regarding this interesting caravansary would your space and our time permit. Suffice it is to say, that the Palace Hotel has been rebuilt from the ground up at an expenditure of approximately eight millions of dollars, and now stands as a monument of the confidence and energy on the part of our American and more especially our Western people.

It is here, surrounded by the memories of the early days of California, that we purpose to carry out our business and social program, and at the same time receive an actual demonstration of what the term "Western hospitality" really means.

As a result, Messrs. Editors, of your editorial and assisted perhaps a trifle by our letter of welcome, we are receiving numerous encouraging communications from veterinarians all over the continent signifying an intention on the part of the writers to leave no stone unturned whereby they can arrange their affairs in order that they may be with us next September.

This is entirely in keeping with our aims and ambitions. We want as large an attendance as possible. We feel that our reputation is at stake, and we desire above all things to cause a realization on the part of the membership of the American Veterinary

Medical Association that their Executive Committee made no mistake in selecting California as a place of meeting, September, 1910.

Respectfully,

R. A. ARCHIBALD,
Chairman Entertainment Committee.

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF ANIMAL INDUSTRY.

WASHINGTON, D. C., February 8, 1910.

Editors AMERICAN VETERINARY REVIEW, New York, N. Y.

GID IN THE UNITED STATES.

In the February number of the AMERICAN VETERINARY REVIEW (Vol. 36, No. 5, pp. 536-548) appeared an article on Gid by Drs. Taylor and Boynton, which would give the impression to the uninformed reader that this was the first authentic report of the occurrence of the disease in the United States. The authors state that "in a careful search of the literature we have failed to find any authentic report of a positively identified case of the disease having appeared in the United States."

As a matter of fact the presence of Gid in this country was definitely determined several years ago, and in January, 1905, the Department of Agriculture issued Bulletin No. 66 (23 pp., 12 figs.) of the Bureau of Animal Industry entitled "The Gid Parasite (*Caninus cerebri*): its Presence in American Sheep," by B. H. Ransom, Chief of the Zoological Division.

In the first portion of this Bulletin (p. 8) it was stated that "evidence has come to hand which shows that the disease is now present in the United States, cases having developed recently which, as the attendant circumstances show, must have resulted from infection in this country.

"A number of native sheep died at Bozeman, Mont., in January, 1904, with the characteristic symptoms of gid. These sheep were brought to the notice of officials of the Montana Agricultural College. On post-mortem examination, bladderworms were found in the brain, and through the courtesy of Professor

Cooley two specimens (B. A. I. Collection, No. 3644, figs. 3, 4) have been placed at the disposal of this laboratory. These specimens agree in all essentials with the European *Cœnurus cerebralis*, so far as may be determined from published descriptions of the latter, no specimens for comparison being at present available."

It may be of interest to note that since the publication of Bulletin No. 66 numerous additional cases of gid have been seen in sheep in Montana, and that the disease appears to be of very common occurrence in that State. The prevalence of gid in Montana has been several times referred to in the printed annual Reports of the Chief of the Bureau of Animal Industry, and reference is made to giddy sheep from Montana in an article by Mr. M. C. Hall of this Bureau published in the AMERICAN VETERINARY REVIEW for December, 1909, pp. 328-337, but all of these references like Bulletin No. 66 apparently escaped Drs. Taylor and Boynton in their search of the literature

Very respectfully,

A. D. MELVIN,

Chief of Bureau.

PHILADELPHIA, PA., February 4, 1910.

Editors AMERICAN VETERINARY REVIEW:

Would it not be well for the REVIEW to urge upon the members of the profession the feasibility of a plan for the San Francisco meeting of assembling in Chicago, and by special cars or by special train, if possible, arranging our way of reaching San Francisco by the Great Northern or Northern Pacific, visiting Puget Sound and the attractions of Washington in part, then down the Pacific Coast to our destination? This plan would add much to the pleasure of going, contribute a deal to the fraternal side of our assembling and would no doubt afford much greater attractions and opportunities for the same money that one will spend individually to reach the western coast.

I am sure our Chicago confreres can make this plan contribute much to this our first meeting on the golden shores of California.

Fraternally yours,

W. HORACE HOSKINS.

ALBANY, N. Y., Feb. 10, 1910.

Editors AMERICAN VETERINARY REVIEW, New York:

At a recent annual meeting of the Medical Society of the State of New York, held in the City Hall at Albany, January 24 and 26, the disease known as Pellagra was one that received considerable attention and discussion; some excellent photos and lantern slides being shown.

It occurred to me that we sometimes have a condition in canines that simulates this disease very much, particularly what is termed the Egyptian type of the disease. I refer to that rebellious form of Dermatitis which has not, to my mind, been satisfactorily diagnosed and in which scrapings reveal no parasite. Possibly this suggestion may be of interest to those who have extensive canine practices and have the means for making accurate observations.

Yours truly,

J. F. DE VINE.

OBITUARY.

CHARLES STEWART ATCHISON, D.V.S.

Dr. Charles S. Atchison was born in New York City in 1875, was graduated from the American Veterinary College in 1898 and died of pneumonia, in the Washington Heights Sanitarium on February 10, 1910. Although born in New York, he had lived in Brooklyn since he was six years old up to the time of his death. He entered the office of Dr. Geo. H. Berns of 74 Adams street, Brooklyn, in 1894, as bookkeeper; a year later he entered the American Veterinary College in New York, graduating from that institution in 1898, when he was made house surgeon at "The Berns Veterinary Hospital," promoted to assistant surgeon in 1902 and to chief surgeon in 1904, having taken a special course in surgery under Prof. Williams in 1903, at Cornell. In 1909 he became a partner with Dr. Berns. His death was sudden and his illness of short duration, being taken sick on Saturday and dying the following Thursday. Doctor Atchison was unmarried and lived with his parents up to the time of his death. He was a brother of Dr. Samuel Atchison, who is a veterinarian also practising in Brooklyn.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

BY PROF. A. LIAUTARD, M.D., V.M.

INOPERABLE SARCOMA TREATED WITH COLEY'S FLUID [*P. Thrale*].—Sarcomata have been treated in human surgery by the use of Coley's fluid: a sterilized culture of the *Streptococcus Pyogenes* and *Micrococcus Prodigiosus* in bouillon. This fluid is intensely toxic, and the injections, beginning with doses of half a minim, are gradually increased to 7 or 8 minims or more. A severe reaction usually follows. The fluid is injected into the abdominal walls or into and around the tumor. In favorable cases the growth gradually dwindles away. The writer, a student in class D, has tried it in a five-year-old mare affected with sarcoma of the posterior scapular region, reaching down over the sternal region, behind the elbow. Previous excision had been done, but the growth had returned. Sixty-four minims of the fluid were injected in nine injections and strong reactions were obtained; but on account of the large size of the tumor, treatment was not continued.—(*Veter. News.*)

CASE OF TRAUMATIC PERICARDITIS [*G. W. Godwin, M.R.C.V.S.*].—Pregnant with her third calf, this cow presents the following symptoms: Pupils dilated, eyes with anxious, frightened expression, mucous membranes cyanotic, very marked jugular pulsations on both sides, œdematous swellings under the sternum. Temperature practically normal, abdominal breathing, pulse weak and intermittent. Auscultation reveals distinct splashing sound, synchronous with heart-beats. Marked dyspnea after a short walk. Traumatic pericarditis diagnosis is made. Cow dies. A piece of wire 3 inches long was found sticking in the heart and the pericardium contained a large amount of stinking fluid.—(*Veter. News.*)

MULTIPLE FRACTURES OF THE VERTEBRAL COLUMN IN THE OX [*E. B. Reynolds, Student Class C.*].—A five-year-old Guern-

sey cow got cast in her stall, the shank of the chain being caught round the left horn. She is relieved of her position with difficulty, but is at first unable to get up. Some twenty minutes later she does get up, carrying her head inclined to the right, and in walking turning to that side with a slightly staggering gait. She was put indoors and kept quiet. She seemed apparently well except that she carried her head to the right and showed some loss of control of her movements. She was later turned out and gradually improved; recovering so far as to carry her head much straighter. She then had her calf. A month later, one evening she was noticed being off her food and giving no milk. She stood with her legs apart and the next morning she died suddenly. At the autopsy all the organs were found healthy except that the "atlas and axis were ankylosed and that, in a distorted position. The atlas with the occiput and skull were twisted on the axis and had become fixed in this abnormal position by bony union between the base of the odontoid process and the atlas. There was also a recent fracture across the odontoid process."—(*Veter. News.*)

MULTIPLE ADENO-CARCINOMATA IN THE BITCH [*Ralph Bennett, M.R.C.V.S.*].—Eight-year-old bitch had ascitis and three tumors in the mammary glands, and also one subcutaneous, close to the costal cartilages. Paracentesis abdominalis gave escape to one and a half gallons of fluid. The tumors were removed and the animal temporarily relieved. One month later she is again in the same condition. The ascitis has returned. She is tapped again and two gallons of liquid taken off. Then laparotomy is performed to ascertain the condition of the abdomen. This is such that the animal is inoperable and is killed. At the post-mortem, the uterus was found enlarged with thick walls, and containing a large quantity of chocolate colored fluid. There were a great many tumors of various sizes, wart-like in aspect, on the ovaries, mesentery, bladder and parietal peritoneum. Examined by Prof. McFadeyeen, these were reported adeno-carcinomata.—(*Veter. News.*)

THREE CASES OF RABIES IN EQUINES [*Capt. Hugh T. Ryan, A.V.S.*].—Record of three cases of horses which had died after presenting symptoms of rabies and in which the diagnosis was confirmed by inoculation of the brain afterwards in two of them. The author suggests the following as of great importance, and

recommends them to every one who sees his first case of rabies: 1. That the animal is rabid and not mad in the ordinary sense of the word; 2. that the animal begins by being uneasy and a few hours later excited; 3. that he rushes at human beings who approach him with the obvious intention of hurting them; 4. that he bites himself severely; 5. that eventually he becomes paralyzed before death.—(*Veter. News.*)

TRAUMATIC PERITONITIS IN A DRAUGHT MARE [*E. Nash*].—Record of an animal which was taken ill with symptoms of colic, which were diagnosed as due to stoppage of the bowels. She was relieved with anodynes, and the next day, although she had no pain and her bowels and kidneys had acted well, yet her temperature remained at 103° F. Forty-eight hours after the first attack she still appeared doing well, eating sloppy food and drinking some. The temperature, however, remained high, and on the fourth day it went up to 104° . She showed no signs of pain but acted only rather in a dull condition. Auscultation revealed a distinct bruit of the aorta. Things remained in about the same condition up to the ninth day, when the animal died, having only exhibited an elevation of the temperature, which ran up to 106.2° , without motion of the bowels. At the autopsy extensive peritonitis was found with a collection of several gallons of bloody, evil-smelling fluid and a great deal of lymphatic clots. In a portion of the double colon were found several abscesses and a large horseshoe nail imbedded and penetrating through the walls of the intestines.—(*Veter. Record.*)

FILARIA OSLERI IN INDIA [*S. H. Gaiger, L.C.V.D.*].—The presence of this parasite is of very rare occurrence; only five observations are on record. The author has found it in a foxhound, which died when 15 months old from an attack of gastroenteritis. On opening the trachea some thirty nodules, 3.5 mm. long and 2.3 mm. wide were found, through the surface of which the head of the worms protruded, with about half of the worm being inside the tumor and the other half in the lumen of the trachea. The lesions were just at the point of the bifurcation of the trachea into the two bronchia and were most numerous in the commencement of the right bronchia. The tumors were egg-shaped, looking exacting like little pieces of tissue glued on the mucous membrane, and were covered with the respiratory mucous membrane. The tumors consisted almost entirely of the

coils and intertwined tails of the worms, the tails being easily seen through the mucous membrane covering.—(*Journ. Trop. Veter. Sciences.*)

COENURUS SERIALIS IN A GOAT [*Prof. D. Dey, Bengal Veter. College*].—*Coenurus cerebralis* is rarely met with in the subcutaneous tissue of animals. Only two cases have been reported. In this case it was in a she-goat, which had a cyst on the off thigh for which she was operated. The cyst was situated between the adductor longus and magnus muscles. Two days later the animal was observed staggering. She fell down, remaining for some time in a state of coma. She had convulsions, spasms of the respiratory, ocular and masticating muscles. After 15 minutes she got up, ate and seemed all right. These fits returned several times during the week. She remained in this condition for a few days and finally died in coma in one of them. It had been noticed that previous to that she had bulging of the right frontal bone. At the post mortem slight congestion of the peritoneum was observed and also cysts in the folds of the mesentery, on the liver and the kidneys. The right hemisphere of the brain contained also a large cyst, which presented innumerable scoleces but without any distinct septa dividing it. From the presence of smaller hooklets carrying a bifid guard the author considers that the specimen he has found was *coenurus serialis*.—(*Journ. Trop. Veter. Sciences.*)

OPERATION FOR STRABISMUS IN A CASE OF DISLOCATED EYEBALL [*Henry Taylor, F.R.C.V.S.*].—Ten-year-old pug playing with another dog knocks himself against a table leg. The right eye projects from its socket and is rotated upon itself in such a way that the internal half of the palpebral opening is entirely occupied by the sclerotic coat and the external half by the cornea. Fomentations and pressure upon the eye failing to reduce the difficulty, an operation was decided upon. The dog received cocaine under the skin of the outer canthus. The palpebral opening was enlarged by slitting the outer angle and the conjunctiva above and below. A hook made with a fine probe was inserted into the orbit between the external rectus and the eyeball and its aponeurotic tendon cut through. Similar procedure was adopted with some of the fibers of the retractor muscle. The wound of the external angle and the lids were sutured. After a few days the stitches were removed and a slight im-

provement only was noticed. This, however, gradually became daily more manifest until complete recovery occurred. There remained, however, a sequela to the accident; the eye became amaurotic. This was independent of the operation.—(*Journ. Veter.*)

FRACTURED TIBIA [*Percy A. Wilkes, M.R.C.V.S.*].—Record with illustration of a fracture without displacement and which was diagnosed only as found at post mortem. Aged cart horse, in harness, slips, falls, and is extremely lame on the near hind leg when he gets up. He puts no weight on his leg and is in great pain. No lesions could be found except some soreness on pressure over the anterior portion of the tibia. The next day the pain is less, but there is a large swelling on the tibial region. The horse is put in slings and after five days the lameness has subsided much. The next morning he is found hanging in the slings unable to resume his standing and is groaning loudly with pain. The owner has him destroyed. A longitudinal fracture of the tibia, oblique and without displacement, were found at the examination of the leg.—(*Veter. News.*)

ADRENALINE IN LAMINITIS [*E. M. Phips, F.R.C.V.S.*].—Bay hunter gelding, six years old, was given twenty miles fast work and the next day had acute laminitis in his forefeet. Physic ball, and drenches of spirits ether. nitr. with aconite were prescribed. He gets worse. He is placed in slings but shows no improvement, being in great pain and sweating profusely. His temperature is up to 102.7° and his pulse 80. Adrenaline is then resorted to. A solution of one drachm of adrenaline hydrochloride solution (1-1000) with 3 of normal saline solution is made; one drachm of this is injected subcutaneously on each side of the fore fetlocks. In a few moments the effects were wonderful and the relief marked and quick. The blowing diminished, the pain was gone and the animal could walk comparatively freely. The temperature dropped and the pulse became normal. Unfortunately the animal took septic pneumonia and died a few days after.—(*Veter. Journ.*)

ENLARGED CYSTIC PROSTATE IN A DOG [*Arthur Payne, F.R.C.V.S.*].—This collie is eight years old and has had difficulty in urinating. He was in good condition, however, had good appetite, only he ejected his urine in a dribbling strain.

There is no calculus in the urethra. Examination by rectum revealed an enlarged prostate. Urotropine was prescribed and the dog became apparently well. About a year after he presented the same condition and was again relieved in the same way. But again twelve months after he had another attack much more severe and that time, on exploring by rectum, the prostate was found so large that it pressed upon the rectum and displaced it upwards. Notwithstanding treatment the dog grew worse and died. The post mortem showed that the prostate was enormously enlarged and cystic. The cyst was as big as an orange and contained four ounces of clear straw-colored liquid.—(*Veter. Journ.*)

AMAUROSIS FOLLOWING PNEUMONIA [*T. H. R. Hoggan, M.R.C.V.S.*].—Broncho mare had pneumonia. Five days later she acted in a peculiar way, banging her head whenever she moved about in her box. She was blind with amaurosis of both eyes. She was treated with blisters over the poll of the head, iodide of potash and strychnia internally. She began to improve after a fortnight of treatment and made a complete recovery in a month.—(*Veter. Record.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

LYMPHADENOMA OF THE MEDIASTINE, INVOLVING THE LARGE ARTERIAL TRUNKS OF THE HEART IN A HORSE [*Dr. Morel, Sanitary Veterinarian*].—This tumor was found in an old horse, very fat, killed for the butcher. On opening the chest the growth was observed developed around the aorta, and the pulmonary artery. The lungs, vena cava, and pulmonary veins, as well as the auricles, remained healthy, but were pushed out of their normal position. Located in the mediastine, the tumor surrounded the large arterial blood vessels. The aorta was twice its normal size. The growth was formed of a firm, homogeneous, white-greyish tissue, which had here and there some nodules which made its outer surface bosselated. It weighed about four kilograms, and the histological examination revealed its nature to be that of lymphadenomatous origin.—(*Rev. de Pathol. Comp.*)

OSSIFICATION OF BOTH AURICLES OF THE HEART IN A HORSE [*Same author*].—A rare lesion found at the hippological abattoir. It consisted in an almost complete ossification of the auricular mass which was five times its normal size. The ventricular mass seems to be covered by a cap. Whitish in color, very hard, this cap had its external surface convex, the internal concave and showing the lateral columnæ charnæ which run through it normally. The interauricular septum was entirely destroyed. The heart was hypertrophied. The lungs were emphysematous.—(*Ibidem*.)

GANGRENE OF THE MUSCLES OF THE THIGH IN A HORSE [*Mr. Langing*].—Animal of great value had on a level with the patella and the external face of the thigh a very large swelling, hard, painless, and carrying four large fistulas, which open on the inside of the thigh. These have existed for some time; and, notwithstanding constant irrigations a very offensive odor comes from them. Pieces of mortified flesh are pulled away by exploration. An operation seems necessary. The three external fistulas are made one with free use of the bistouri, and a wide wound 35 centimeters long and 12 deep is made. The edges are kept apart with forceps and large and thick pieces of gangrenous muscular tissue are extracted. They give out an horrid odor. Their quantity is such that they have to be removed with the hand. Their size varies between 100 and 500 grammes. Weighed all together they form a mass weighing four kilogs. The immense cavity well washed antiseptic solution, was subsequently dressed with boric acid and soon began to heal. The cicatrization was quite rapid and in five weeks was complete. Unfortunately the pathogeny of this peculiar accident has not been positively made out.—(*Bullet. de la Soc. Cent.*)

ENIGMATIC INTESTINAL OCCLUSION IN A COW [*Same author*].—A cow presented all the symptoms of indigestion: Loss of rumination, slight tympanitis, moaning while laying down, no defecation. All kinds of treatment are resorted to, frictions of oil of turpentine, soap rectal injections, purgatives, veratrine, pilocarpine, eserine, etc. Nothing succeeds. Intestinal obstruction is suspected and yet there is no intermittent colic. Ten days after that state of affairs, while making another rectal examination, the writer pulled out a blackish cylindroid body measuring 12 centimeters in length and resembling a large

sausage. It has a very offensive odor, and looks like a large thick clot of blood in putrefaction. From this moment the condition of the cow improved and recovery followed in a few days. Instead of a clot of blood it is probable that the cylindroid body referred to was the mortified part of an invagination which had happily sloughed out.—(*Bullet. de la Soc. Cent.*)

CANCER OF THE LEFT SAC OF THE STOMACH [*Ch. Darmagnac, Army Veter.*].—Always delicate, this mare, aged 14 years, was at last in very bad condition. She is a living skeleton, having lost 85 kilogs. of her weight. The mucous membranes of the eye and vulva are pale yellow, that of the mouth is also yellowish and the tongue is heavily coated. She has no appetite or again has a very marked *pica*. Her *faeces* are in small and well-formed balls. Pulse is 60, temperature and exploration of the large cavities shows everything normal. The blood is pale in color. It coagulates slowly and presents hypoglobuly and hypoleucocytosis. The urine is alkaline with density of 1048. No abnormal elements but deposits of oxalate of lime. Test of tuberculine is negative. Subglossal and parotid *œdemas* appeared later, but there was no stomachal regurgitation. After a short time of tonic treatment with select food the mare showing no improvement in her condition, she was destroyed.

At the post mortem, the left sac of the stomach was found occupied with an enormous tumor weighing 3 kilogs. 500. It had developed around the cardia and was projecting in the inside of the organ where it appeared as a big cauliflower. The stomach contained about two pounds of earthly substances. Some other smaller tumors existed in various parts of the abdominal cavity and on the ovary.—(*Rev. Gen. de M. Veter.*)

HERNIA OF UTERINE HORN AND OMENTUM ON THE RIGHT SIDE OF THE VULVA IN A SLUT [*Mr. Pignet*].—To add to the record of errors of diagnosis the writer mentions the following: A large-sized slut had delivered three dead puppies. She had also on the right side of the vulva a soft round tumor, quite as big as the fist, which diagnosed as a cystic pouch, was not operated at once, on account of the condition of the dog. Having improved, another examination was made. An exploration with puncture gave negative results. An incision with the bistouri was made and when the finger was introduced into the cavity it came in contact with a part of the great omentum and drew

out one uterine horn and its corresponding ovary. An operation to reduce these was performed afterwards with all conditions of asepsy and antiseptics and followed with recovery. The rupture had taken place through the right inguinal canal, passed between the skin under the pubis and the ischio-pubic floor and finally along the thigh to appear on the side of the vulva. If the animal had been carefully watched during her pregnancy it is probable that her condition would have been better known and no error of diagnosis committed.—(*Rec. de Med. Veter.*)

CURIOUS SYMPTOMS DUE TO AN INTRA-THORACIC MELANOTIC TUMOR NOT SUSPECTED [*Mr. Perard*].—At the post mortem of this old horse which had been destroyed because of his age and a severe suffocating attack of roaring, there was found in the thoracic cavity an enormous melanotic tumor filling up the anterior extremity of the chest. Developed slightly more on the right side, the growth is irregular, bosselated, in form of cauliflower, and is situated between the base of the heart, the anterior extremity of the chest, the vertebral column and the trachea, which it squeezes on the sternum. It envelops the pneumogastric and recurrent nerves of the right side. There was no other melanotic deposit in any part of the organism. During life the horse had had colic which presented as peculiar amongst the manifestations an abundant perspiration on the right side of the neck. This he kept all the time afterwards. He had been reported as being deaf and also blind. Evidently his sight was poor, the upper eyelid of the right side was drooping over the globe of the eye. He had had epistaxis and also frequent attacks of roaring with threatening suffocation after exercise. Very careful examination of all the functions and searching for acute diseases of the respiratory apparatus were always negative. Cerebral tumor had been suspected and iodine treatment followed; but after ten days his condition became such that the owner had him destroyed.—(*Rec. de Med. Veter.*)

BELGIAN REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

SARCOMA OF THE MEMBRANA NICTITANS IN A DOG: GENERALIZATION: DEATH BY CACHEXIA [*Prof. Hebrant and Adjunct*

Antoine].—This is a detailed record of a case of sarcomatous generalization which occurred in a street dog. The disease manifested itself first by a single growth over the membrana nictitans of the left eye, which, although it had been removed in three different surgical interferences, in the last one of which the entire globe had been taken off, yet had returned. Finally the dog was brought to the attention of the writers. He was in bad condition. The orbit was filled with an enormous tumor, projecting beyond the brims of the cavity and spreading to the skin of the face, to which it is adherent. Extirpation of the neoplasm was attempted, but had to be abandoned on account of the vast extent reached by the neoplasm. Then cauterization and sloughing with formic aldehyde injections were tried, but the invading process of the tumor to the face, the lymphatics and the neck showed that the animal was beyond possibility of treatment. He died cachectic, having gradually lost its appetite and yet having never exhibited during life the slightest respiratory or nervous trouble. The post mortem was very curious and interesting and the lesions beyond expectation. Almost the entire organism was involved. In all the tissues and organs, with only two exceptions, tumors of various sizes and different dimensions, but all with the same aspect and of the same nature, were found. They were all well defined, having a pale rose color of fresh veal meat, and all presenting the same macroscopic and microscopic characters. Strange to say that, notwithstanding this extensive generalization, the lungs and the kidneys were the only organs free from lesions. The spleen had only a very small tumor.—(*Annal. de Belgiq.*)

DEEP PUNCTURED WOUND OF THE FOOT: TENECTOMY: RECOVERY [*Mr. C. Verlinde*].—Aged ten years, this horse has picked up a nail. He is very lame and the foreign body has run obliquely upwards and backwards, being implanted in the external lacunæ of the frog. It is extracted and synovia escapes freely. There is perforation of the plantar aponeurosis and the sesamoid sheath is open. Tepid creolined footbaths and dressings with Van Swieten solution, iodoformed gauze and hydrophile wadding are resorted to and kept up for a few days. No improvement takes place and an operation is decided. After thorough disinfection of the foot the horse is put in stocks, cocaine is injected a little above the fetlocks on both sides, the sole is removed, the body of the frog is excised, and the plantar

aponeurosis is exposed. Part of this is cut off and the navicular bone is detected apparently healthy. For some time improvement seems to follow, but then relapse takes place. The fetlock is swollen, ugly suppurating synovia flows freely, and by another operation a portion of necrosed aponeurosis is freely cut away, leaving a deep, infundibuliform wound which required about a whole month to heal, after which the horse resumed his work.—(*Bull. de Med. Veter. Malines.*)

ABSCESS OF THE NECK OF THE BLADDER FOLLOWING DISTEMPER IN A DOG [*Mr. George Hassc*].—A Gordon setter dog has had distemper with broncho-pneumonia manifestations. It is noticed that although in apparently perfect healthy condition, he passed blood in micurating. The bladder is painful during rectal examination, and the examination of the urine with the microscope and a chemical analysis reveals a large number of leucocytes with the presence of pus, hemoglobin and albumin. Although the dog did not seem to be much distressed with that condition, his ailment lasted six weeks. The only treatment consisted in pearls of spirits of turpentine, tea and suralimentation.—(*Ibidem.*)

SPONTANEOUS STOMACHAL AND RECTAL RUPTURES IN A HORSE [*MM. Bredo and Gendens*].—A mare is taken with colic and dies in an hour. The abdomen is very tympanitic and a fold of the floating colon escapes through the anus. At post mortem no peritonitis is found. The floating colon is pressed towards the pelvis and one fold of it passes between the uterus and the anterior part of the rectum by a rupture of the organ, measuring 20 centimeters in length and having indurated borders. These are bloodless. There was also a post-mortem laceration of the stomach. The animal had been a confirmed wind-sucker and on several occasions had suffered with tympanitis. It was evident that the stomachal and coli-rectal ruptures were due to the struggles during the attack of colic and to the heavy falls on the ground, which produced a sudden compression of the tympanitic abdomen in which the gases promoted the double splanchnic rupture in the less resisting parts, one in front on the stomach and one in the posterior part of the gastrointestinal tract.—(*Bull. de Med. Veter. Malines.*)

GERMAN REVIEW.

By JOHN P. O'LEARY, V.M.D., Buffalo, N. Y.

PARATYPHUS BACILLI IN THE ICE USED FOR THE PRESERVATION OF SEA FISH: A CONTRIBUTION TO THE ORIGIN OF FISH POISONING [*Dr. Rommcler*].—After Conradi called attention to the occurrence of meat poisoning in connection with ice preservation, the author examined ninety-eight samples of ice which were taken indiscriminately from boxes in which sea fish had been shipped, for the presence of *paratyphus bacilli*. Among twelve different shipments of fish four samples of ice from each shipment harbored the *paratyphus bacilli*. It is, therefore, not impossible that under such circumstances the *paratyphus bacilli* present in the ice, contaminate the fish with poisonous principles which accounts for the outbreak of the so-called fish poisoning in the human subject. The author does not wish in any sense to infer that the shipping of sea fish in natural ice be forbidden, but rather in the sanitary interests of the enterprise that only such natural ice be used for the above-named purpose, as is derived from waters whose source is free from the suspicion of infection. —(*Deutsche Medizin. Wochen.* 35 Jahrg. 1909, S. 883.)

A NEW FELINE INFECTIOUS DISEASE [*Dr. Gaertner*].—A new infectious disease appeared among cats which were confined in a kennel at the University of Griefswald. Six cats died within four days and two more shortly afterward. The autopsy revealed in all cases a multiple necrotic pneumonia which was complicated in three animals with a hæmorrhagic fibrinous pleuritis. In teased preparations from the hepatized lung tissue, from the spleen, and heart blood, a short ovoid, bipolar, stainable, Gram negative, rod shaped organism had been found. Pure cultures of this bacterium were pathogenic for rabbits, guinea pigs, white mice, dogs and cats. As a result of the experiments carried out by the investigator, he arrives at the following conclusions: 1. From all the cats dead of the disease he isolated and cultivated one and the same ovoid organism. 2. This rod-shaped bacillus belongs, according to its morphological, biological and cultural properties, to the group of *Bacterium Hæmorrhagic Septicæmia*. 3. Because with this organism by inhalation, intratracheal and intrathoracic injections a pneumopleuritis can be produced, therefore it must be the cause of this feline infectious disease. The mien organism can be called according to its habitat *Bacterium*

Pneumonia Felis.—(*Centralblatt für Bact. U. S. W.*, 1909, 1 *Abt.*, *Orig. Bd.*, 51, S. 232.)

INVESTIGATIONS CONCERNING THE HÆMORRHAGIC INFARCTS IN BEEF LIVERS [*Chaussè*].—Although Stubbe, Kitt, Saake, Jäger, Stroh and others in Germany had described this liver affection, which is frequently found in food-producing animals, Chaussè took up the work and investigated the disease both microscopically and macroscopically; and also as to its etiology. He found no vegetable or animal parasites which could be ascribed as a cause. From his investigations, Chaussè draws the following conclusions: 1. This liver affection is quite a common occurrence in cows, it is rare in oxen and not seen in calves or other animals. 2. Its etiology is still unknown. 3. The source of this disease is to be sought in the ramifications of the portal vein. From this point toxic or other microbic influences act deleteriously on the liver capillaries; the latter dilate leading to hæmorrhagic infarcts. 4. Only those livers which are badly affected should be rejected for edible purposes; otherwise they may be consumed without danger.—(*Deutsche Tier. Wochenschrift*, No. 22, 1909.)

THE INFLUENCE OF TUBERCULINIZATION ON THE MILK SECRETION [*Tiraboschi*].—After the injection of tuberculin a slight decrease in the amount of milk secreted is apparent during the first hours, which in the succeeding twelve hours increases somewhat and is considerably increased in the next twelve hours, and then again rapidly falls off, so that about the third day normal conditions again prevail. In reacting animals the average loss is 1.940 kg., in non-reacting animals half, usually 0.926 kg. The chemical composition of the milk is changed, inasmuch that in the first twenty-four hours a slight increase is noticeable in the fat content and of the soluble substances in the serum. There was no appreciable difference observed in the milk of reacting and non-reacting cows, while at the same time a decrease in quantity took place, so that the increase of the fat and the soluble substances in the serum are to be considered purely as indications of a highly concentrated condition: a relative increase only.—(*Deutsche Tier. Wochenschrift*, No. 22, 1909.)

THE PRESENCE OF MICRO-ORGANISMS IN THE CONJUNCTIVA OF THE HORSE AND THEIR RELATION TO OCULAR DISEASES

[*Chief Vet., Ernest Krüger*].—In the eyelids of healthy horses we find many species of microbes: staphylococcus, streptococcus pyogenes and aureus, bacilli, which resemble the bacterium coli, one similar to the necrobacillus, also diplococci, which resemble in appearance and growth Fraenkel's pneumococcus. The material was taken in this manner: A piece of fine rubber tubing previously sterilized was attached to the end of a glass rod. The tubing was now moistened with sterilized bouillon and then wiped across the conjunctiva. The secretions adhering to the rubber tube were placed in sterilized bouillon; with this material agar and gelatine plates were inoculated and the colonies isolated. From the abundance of organisms present in the conjunctival secretions, we may conclude that they are an important factor in the therapy of ophthalmic diseases. The presence of micro-organisms derived from the atmosphere, from the lachrymal ducts in diseases of these or neighboring parts or directly gaining the eyelids, prove beyond doubt that through slight defects in the epithelium of the conjunctiva a means of infection exists at all times. Consequently in cases of simple conjunctival catarrh or inflammations or corneal ulcers, the disinfecting method of treatment is of the greatest importance.—(*Zeitschrift für Veterinärkunde*, 1908, S. 193.)

INVESTIGATIONS REGARDING THE ACTION OF PURE OXYGEN IN WOUNDS AND INFECTIONS [*Dr. Burkhardt, Würzburg*].—Thiriar, of Brussels, was the first to use oxygen in surgery. The agent was applied by means of subcutaneous insufflation in phlegmons, furuncles, suppurative arthritis, etc. The results obtained were extraordinary. Later other investigators took up the study of oxygen along the same lines; for example the English physician, Stober, also Joris, a pupil of Thiriar. According to Joris, oxygen has only a slight disinfecting power, its action depends upon the fact that the bacterial toxins are rendered harmless by oxidation; that apart from the phagocytosis aroused, hyperleucocytosis is induced. In spite of the alleged results the method of treatment under discussion has found few supporters.

The author tested the action of pure oxygen upon wounds and infections in rabbits and dogs as experiment animals. The results are as follows: 1. Oxygen in contact with wound surfaces produces an intense vascular injection, a condition of arterial hyperæmia. The wounds remained more moist and the granulation tissue formation was promoted. 2. Cultures of

facultative aerobic bacteria grown on artificial media in an atmosphere of pure oxygen are considerably retarded in growth, but are not destroyed. 3. In the animal body it appears also that large quantities of oxygen brought into contact with areas of infections do not limit the growth of bacteria to any appreciable degree; in general infections it is even less so when we saturate all the body of experiment animal with oxygen. Nevertheless these animal experiments indicate that a decrease in the virulence of the bacterial poisons takes place even, if only to a slight degree. 4. When pure oxygen is brought in contact with the peritoneum, a slight inflammatory irritation is produced, a condition of hyperleucocytosis arises especially when fluid is present in the abdominal cavity, the absorption of fluid in that cavity is retarded. 5. Ozone seems to be superior to ordinary oxygen in combating infections; especially in the body cavities, as the latter permit of being readily filled with the gas.—(*Deutsche Zeitschrift für Chirurgie*, 93 Bd. 2 Hft., page 182.)

WESTERN CANADA NOTES.

C. H. H. SWEETAPPLE, V. S., staff-sergeant for many years in the Royal Northwest Mounted Police at Fort Saskatchewan and registrar for the Alberta Veterinary Association, has been given a commission and is now Inspector Sweetapple.

UNDER the authority of the new Provincial Health Act, referred to in the notes in the January issue of the REVIEW, Dr. J. W. Whybra, V.S., of Prince Albert, has been appointed on the council for a two-year period.

DR. A. S. GEBBIE, late of the Health of Animals Branch, has located in practice at Balgonie, Sask., and will also deal in Eastern horses.

INSPECTION of dairies and cattle in Western cities, such as Regina, Saskatoon, Prince Albert, Edmonton, Calgary and Lethbridge is performed by laymen. Milk retails at ten cents per quart and is of only fair quality judged by macroscopical tests; no testing of cows with tuberculin is done.

It is hoped that the new Council of Public Health will urge upon the different municipal authorities the necessity for eliminating as a source of milk supply for their respective burghs, by means of the tuberculin test, all diseased cows.

DR. J. D. PAXTON, of the Health of Animals Branch and Customs Department, stationed at Midway, B. C., has recently become a benedict.

SOCIETY MEETINGS.

THE A. V. M. A. AT SAN FRANCISCO.

The zeal with which the veterinary profession of the Pacific slope is unceasingly laboring in one united effort to make the 1910 meeting a success promises no uncertain reward to members of the association and veterinarians throughout America. By planning now and making arrangements to attend the annual convention we embrace an opportunity not alone to take part in good fellowship, to receive the benefits derived by mixing with men of national repute, but, moreover, do this at a time when one can conjoin a professional feast with delightful travel, sight-seeing and a visit to a country west of the Rockies that scarcely a man with ambition has not hoped some day to look upon.

Although the eager and well-organized preparations as well as other influences add a stimulus and tend to strengthen a latent inclination to attend the next A. V. M. A. convention, it is even thus early anticipated that the changed character of the program, and the many apparent attractive features now formulating for the meeting, will act as an irresistible magnet. Though an entirely new step and far from our customary habitat indications this early point to unprecedented attendance and success of the Western venture.

With the nucleus of a program in sight we feel prepared to outline the week's work as follows:

Monday, Sept. 6—The afternoon and evening to be given over to the consideration of veterinary educational problems combining the efforts of the Association of College Faculties and Examining Boards, the Association Committee of Faculties and the Committee on Intelligence and Education. It is believed that the result of these deliberations can be submitted to the association in resolution form and thus largely condense this heretofore protracted phase of the business portion of the meeting.

Tuesday, Sept. 7—The morning session given over to opening exercises and president's address. The afternoon session to be a symposium on tuberculosis under the auspices of the

Committee on Diseases, and including the results of the deliberations of the International Commission for the Study of the Control of Bovine Tuberculosis, which latter is working under the initiative of the A. V. M. A. The remainder of this session to be occupied with admission of new members and election of officers.

Wednesday, Sept. 8—The morning session will be consumed in finishing what remains of the general business and in the presentation of papers on sanitation, research and experimental work. The afternoon session to be devoted to subjects directly intended for the benefit and interest of the general practitioner. Wednesday evening we may again consider the rapidly developing problem of milk or meat sanitation and thereby aid and strengthen the position of the veterinarian in general practice as regards food sanitation.

Thursday, Sept. 9—The morning to be given over to various phases of surgery in its relation to veterinary practice. The afternoon for papers of general interest to all veterinarians. Evening, the banquet.

Friday, Sept. 10—A surgical and diagnostic clinic.

It is anticipated that not all veterinarians will find it convenient to attend. This misfortune should not deter non-member veterinarians from submitting their applications for membership; members are supplied with a detailed résumé of the meeting in an annual report containing, likewise, the literary contributions. It can thus be realized that under one cover is contained literature of inestimable value which, even without the undisputed pleasures and advantages of attending the meeting of the national organization, is worth many times the cost of affiliation.

Should literary contributions materialize in sufficient abundance, it is even possible that division of the morning sessions into sections may be attempted.

Readers of the REVIEW are earnestly requested to aid in the program making by signifying their intention to contribute to the literary features. Offers to contribute (and if possible the titles stated) should be immediately sent to the secretary, Dr. R. P. Lyman, 1336 East Fifteenth street, Kansas City, Mo. This is a general appeal and acknowledges that we desire contributors in all fields of veterinary science.

R. P. L.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

This association convened for its twenty-seventh annual session at the Ohio State University, Columbus, O., on Tuesday, January 18, 1910.

The meeting was called to order at 2 p. m. with President Wm. H. Gribble in the chair.

Dr. Gribble introduced Dr. David S. White, who gave an interesting address of welcome. The welcome address was responded to, in behalf of the association, by Dr. W. A. Axby, who, likewise, gave a very interesting talk.

THE ATENDANCE—The roll-call showed the following members present: F. E. Anderson, W. A. Axby, S. E. Bretz, J. H. Blattenberg, O. V. Brumley, H. W. Brown, Walter A. Brown, I. J. Brobeck, L. W. Carl, G. W. Cliffe, L. P. Cook, E. H. Calender, Rolly J. Carver, Norton Dock, A. C. Dunlap, B. C. Eldredge, J. D. Fair, H. Fulstow, J. E. Foster, C. B. Frederick, Paul Fischer, J. L. Faragher, W. F. Foust, Wm. H. Gribble, T. B. Hillock, W. R. Howe, S. R. Howard, R. C. Hill, E. R. Hinkley, O. E. Hess, Ruben Hilty, C. E. Inskeep, T. E. Jones, J. H. Jefferson, F. B. Jackson, Geo. W. Kinsey, A. J. Kline, W. A. Labron, C. E. Leist, E. C. Langdon, E. C. Limbaugh, S. D. Myers, J. A. Meagher, Fred Miller, H. M. Manley, G. U. Marchand, A. E. Metzger, H. T. Moss, H. E. Myers, E. L. Price, L. A. Severcool, Walter Shaw, F. F. Sheets, S. Sisson, L. Smalley, E. R. Stockwell, W. H. Smith, D. C. Snow, Herbert Skeels, J. E. Stansbury, W. H. Turner, H. B. Turney, W. E. Wight, D. C. Snow, W. B. Washburn, I. A. Wynn, W. E. A. Wyman, C. J. Williamson, A. J. Wolf, C. C. Yule, besides quite a number of visitors.

The minutes of the previous meeting were read and approved.

President Gribble followed with an excellent annual address.

A communication was received from Dr. T. B. Cotton, one of the charter members, stating that on account of failing health he was unable to attend the meetings, and requested a withdrawal card. On motion, Dr. Cotton was elected an honorary member.

Report of Committee on Veterinary Progress was rendered by Dr. F. F. Sheets, chairman.

Treasurer's report was then read by President Gribble. It showed a balance of \$416.25 in the treasury, with a few outstanding orders unpaid.

Report of Committee on Veterinary Diseases was made by its chairman, Dr. Paul Fischer.

The secretary reported the fact that since our last meeting death had removed one of our members, Dr. J. W. Price. The secretary called attention to the special assessment fund which we have on hand, and advised that the same be disbursed. On motion, it was ordered that those who paid the \$5 assessment, that the same be returned.

Committee on Arrangements reported that a banquet had been arranged for at the Northern Hotel in the evening.

ELECTION OF OFFICERS.

There being but one nomination for each respective office, the rules were suspended and each in turn was elected by the usual procedure.

President—Dr. L. P. Cook, Cincinnati.

Vice-President—Dr. G. W. Cliffe, Upper Sandusky.

Treasurer—Dr. T. B. Hillock, Columbus.

Secretary—Dr. O. V. Brumley, Columbus.

Censors—Dr. J. D. Fair, 3 years; Dr. S. Sisson, 2 years; Dr. J. E. Foster, 1 year.

BANQUET.

The banquet, in point of numbers, decorations, music and good things to eat, was the best ever. Seventy-nine surrounded the tables.

After the eating was over it was voted, on account of the lateness of the hour, to have but one paper before we adjourned.

Dr. H. T. Moss read his paper, "Has the Dog an Appendix?"

The paper brought out quite a lengthy discussion, which was more scientific than practical.

President Gribble appointed Drs. Shaw, Wight and S. D. Myers a committee on resolutions on the death of Dr. Price.

Adjourned to meet at the Ohio State University at 8.30 a. m., January 19.

WEDNESDAY, January 19, 1910—Meeting was called to order at 9.30 a. m.

PAPERS AND DISCUSSIONS.

The meeting was opened with a paper by Dr. G. W. Kinney, entitled "Tuberculosis: Where Are We At?" This was a good paper and received a very liberal discussion, followed by Dr.

G. U. Marchand, "Veterinary Obstetrics: Dystokia in the Mare, Cow, Bitch and Sow."

Dr. J. H. Jefferson read a very practical paper, "Dyæmic Arthritis and the Use of Nuclein Solution in Its Treatment." This was followed by another paper of practical value by Dr. Rolly J. Carver, "Sanitary Construction of Dairy Barns."

RESOLUTIONS—The following resolution was offered by Dr. L. P. Cook:

"Resolved, That this association indorse any effort to secure legislation providing against the confinement of horses in stalls less than six feet wide and nine feet long. This association believes that it is not only brutal to deny the tired horse sufficient stall room to rest itself, but that many of the deformities and infirmities and consequent sufferings of horses are due to their confinement in stalls too small to permit of their lying down properly and securing needed rest."

Moved and seconded that the above resolution be adopted and that the secretary be instructed to forward a copy of the same to the Hamilton County Society for the Prevention of Cruelty to Animals. Chair declared the motion carried.

Drs. Holden, Dock and Dettman were called for papers, but the authors were all absent at this time. Dr. Limbaugh was also absent.

Dr. H. E. Myers' case reports, (a) "Influenza with Rheumatic Complications"; (b) "Strangles," were read by the secretary.

The Board of Censors reported having examined the credentials of twenty-one applications for membership and one for reinstatement and recommended that they be elected to membership.

There being no objections to any of the candidates, it was moved and seconded to suspend the rules and the secretary cast the vote of the association for the candidates whose names were read.

Committee on Necrology then reported as follows:

"Whereas, death has removed from us Dr. J. W. Price, of Lancaster, O., who was born October 21, 1868, near Reynoldsburg, Fairfield County, O. He graduated from the Ontario Veterinary College, March 24, 1894, and joined this association January 15, 1908. Dr. Price had suffered for a number of years

from renal calculi, and was removed from his home August 23 of last year to Grant Hospital, Columbus, where he was operated upon and died August 26.

"This association mourns the untimely loss of one of its members, a successful practitioner, a lover of the horse and a courteous gentleman.

"We hereby extend our heartfelt sympathy to the bereaved wife and family, and spread upon the minutes of this association this expression of the high esteem in which the deceased was held by all its members.

"WALTER SHAW,

"S. D. MYERS,

"W. E. WIGHT,

"Committee."

On motion, it was ordered that the resolutions be spread on the minutes, that they be published in the AMERICAN VETERINARY REVIEW, and that a copy be sent to the family of the deceased.

The Auditing Committee retired to consider the bills against the association. Dr. Foster, a member of the committee, being absent, Dr. Axby was appointed to fill the vacancy.

On motion, a vote of thanks was tendered the retiring officers, the officers of the Ohio State University and the various committees.

The officers-elect were declared installed. There being nothing further, the association adjourned.

SYDNEY D. MYERS, Secretary.

INTERNATIONAL COMMISSION ON CONTROL OF TUBERCULOSIS OF DOMESTIC ANIMALS.

FIRST SESSION.

The American Veterinary Medical Association has recognized for some time that the question of tuberculosis control work among domestic animals was a big and very difficult problem of universal interest and fundamental importance and one that must be met sooner or later.

This Association clearly recognized that certain great interests are concerned in any dealing with this problem. Funda-

mentally these are: First, general society interested in this question as a public health measure; second, the live stock producer, especially interested in the financial questions of profit and loss—the producer of animal foods for human beings; and, third, there was the manufacturer of these animal feeds, the packer; and, fourth, the veterinary profession involved as sanitarians and practitioners intimately related on one hand to the producer, and on the other hand to the consumer.

With these considerations in view, the American Veterinary Medical Association made provision at its last session for the creation of an International Tuberculosis Commission, which should fittingly represent all these great interests. The essential duty of this Commission was to study thoroughly and report upon the general problems of control work rather than upon technical research problems.

The following gentlemen were selected to represent the United States on this Commission: Hon. W. D. Hoard, of Wisconsin, a practical dairyman, breeder, farmer, and editor of *Hoard's Dairyman*; Dr. John R. Mohler, Chief of the Pathological Division of the federal Bureau of Animal Industry; Dr. V. A. Moore, professor of pathology and dean of the veterinary college at Cornell University, New York; Dr. M. P. Ravenel, professor of bacteriology, University of Wisconsin, and member of the Wisconsin State Live Stock Sanitary Board; Dr. M. H. Reynolds, professor of veterinary medicine, University of Minnesota, member and organizer of the Minnesota State Live Stock Sanitary Board; and Dr. E. C. Schroeder, superintendent of the federal Bureau of Animal Industry Experiment Station.

The members selected to represent the Dominion of Canada were: Hon. W. C. Edwards, Ottawa, one of Canada's most famous breeders of shorthorns; Mr. J. W. Flavelle, of Toronto, a prominent Canadian packer; Dr. C. A. Hodgetts, Chief Health Officer for the Province of Ontario; Dr. J. G. Rutherford, Veterinary Director-General, and Live Stock Commissioner, Ottawa, and Dr. F. Torrance, Winnipeg, professor of veterinary medicine, University of Manitoba, and a prominent Canadian veterinarian.

So far as the writer knows, credit for the original suggestion and for pushing the movement along until it finally resulted in the creation of this Commission, belongs especially to Dr. Rutherford, of Canada.

The first session of this Commission was held recently at Buffalo, New York. Dr. J. G. Rutherford was elected chairman, and Dr. M. H. Reynolds secretary of the Commission.

It was soon recognized that this was necessarily a preliminary meeting and should be devoted to a discussion of organization, and plans for work with the members getting acquainted with each other and with each other's views.

It was soon agreed that the Commission could not wisely at this stage adopt specific resolutions or recommend specific methods, but a number of general propositions were taken up for consideration and on some of these the Commission reached unanimous understanding.

(1) That general compulsory tuberculin test and slaughter is impractical and should be dropped from further consideration.

(2) That voluntary testing for owners as a general state policy should be retained, provided it be recognized for what it really is, i. e., a very efficient means of public education and as serving somewhat to keep further spread of tuberculosis among domestic animals in check.

(3) It was unanimously agreed, recognizing fully its limitations, that we can and should accept the tuberculin test under certain conditions as a basis of suitable control legislation.

The general problem before the Commission, i. e., control work, was divided into four sections and assigned to sub-committees as follows:

Education and Legislation.—Dr. Reynolds (Chairman), Governor Hoard, Dr. Rutherford.

Dissemination.—Dr. Moore (Chairman), Dr. Schroeder, Dr. Ravenel.

Location of Tuberculosis.—Dr. Mohler (Chairman), Mr. Flavelle, Dr. Hodgetts.

Disposition of Tubercular Animals.—Senator Edwards (Chairman), Dr. Mohler, Dr. Torrance.

One of the serious difficulties in our problem was recognized as the indifference of purchasers of valuable breeding stock who want certain blood lines and are willing to take the tuberculosis in order to get the breeding.

It was recognized that marked change in public sentiment in most states and provinces must be secured and that this can be expected only as a process of slow development.

In this informal discussion the Commission found and recognized the importance of certain doors admitting the sanitarian to

the tubercular herd, i. e., (1) by way of the killing floor and local stock yards to the farm; (2) through clinical cases recognized in practice, inspection, or otherwise; (3) tuberculin testing for interstate and export traffic.

Two important general sources of dissemination (not individual infection) were recognized: first, the traffic in tuberculous cattle especially in pure bred stock, and second, unpasturized creamery skimmed milk.

In view of these various considerations it was also agreed that the Commission needs the assistance of two more members, one of whom should directly represent American packers and the other should represent American state health officers.

M. H. REYNOLDS, Secretary.

RHODE ISLAND VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the Rhode Island Veterinary Medical Association was held at the hospital of Dr. J. S. Pollard, 22 Powhatan street, Providence, on Thursday, January 20, and was well attended by members from all parts of the state. The meeting was called to order by the President, Dr. Thos. E. Robinson, of Westerly, who made a short address of welcome to the members present. A committee of the Board of Examiners consisting of Drs. Charles T. Frey, John S. Pollard and Thomas E. Robinson were in attendance and addressed the members of the association upon the workings of the board for the past year, and gave many proofs of the good accomplished by the passage of the Veterinary Practise Act. It was suggested by the committee that this association might desire to co-operate with the Board of Registration in printing the association's by-laws with the rules and regulations, copy of practise act and lists of registered veterinarians, that the Board of Registration are about to have printed, thereby having one book instead of more. This suggestion brought about a thorough discussion of the subject, the result of which was that it was voted to combine the by-laws of the association with those of the Board of Registration, the expense to be borne in equal part by each. The subject of tuber-

culosis proved to be the one which afforded much discussion and the following resolution was adopted and ordered published:

Whereas, An incident has lately occurred in which the tuberculous patients at Wallum Lake Sanitarium were fed tuberculous milk from diseased cows, and

Whereas, Such unfortunate accident could not have happened if said cows had been properly inspected before entering the state, and

Whereas, Such inspection can only be properly accomplished by intelligent veterinary inspection, it is

Resolved, That in the opinion of the Rhode Island Veterinary Medical Association the inspection of cattle in this state should be in the hands of graduates in veterinary medicine.

His Excellency Gov. A. J. Pothier was elected to honorary membership and one candidate was elected a member. Election of officers resulted as follows:

President—Dr. Richard L. Tucker, of East Providence.

First Vice-President—Dr. Geo. L. Salisbury, Jr., of Lafayette.

Second Vice-President—Dr. Ed. J. Sullivan, of Georgiaville.

Secretary—Dr. John S. Pollard, Providence.

Treasurer—Dr. Thos. E. Robinson, of Westerly.

J. S. POLLARD, Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular meeting of the Veterinary Medical Association of New York City was called to order in the lecture room of the New York American Veterinary College, 141 West Fifty-fourth street, New York City, on Wednesday evening, February 2, with the President, Dr. E. B. Ackerman in the chair. After the usual routine business had been transacted, the President introduced Dr. W. Horace Hoskins, of Philadelphia, who addressed the association on "Some of the Men of our Profession of the Last Thirty Years." Dr. Hoskins spoke from intimate personal knowledge of some of the strong men of our profession, many of whom have recently died, leaving the veterinary profession stronger and better because of their work in its behalf. The doctor spoke of the profession's tremendous indebtedness to such

men as Liautard, who fortunately is alive and vigorous, and to Raynor, Faust, Huidekoper, Lyman, Michener, Bell, Pearson and others. The debt can only be partially repaid by keeping the characters and self-sacrifices of such men constantly before us to act as an inspiration and stimulus to greater individual effort in behalf of the veterinary profession. Since many of the men mentioned had made New York the arena of their labors, we felt a greater personal interest in the address. After Dr. Hoskins' remarks were concluded, several of the members spoke reminiscently of some of the men mentioned.

Dr. William Sheppard contributed some excellent case reports on "Fatal Skin Disease in Horses." He gave the history of four acute cases of a peculiar affection of horses confined to animals on a single farm. The symptoms were remarkably similar to those of rabies as seen in the horse, with the exception of the violent symptoms, so often associated with rabies. The post-mortem findings of a single case were reported by Dr. McCartney and the bacteriological findings by Dr. V. A. Moore, who reported negatively as regards the examination of the brain for "Negri Bodies."

This paper led to an animated discussion. Some members expressed the opinion that the cases were rabies, while others believed them to be an obscure nervous affection, not rabies. This paper in its entirety will be published in the AMERICAN VETERINARY REVIEW.

Drs. Hoskins, Sheppard and McCartney received a vote of thanks for their contributions to the evening's program.

Dr. J. Schnurmacher was elected to membership. Meeting adjourned.

W. REID BLAIR, Secretary.

COLORADO VETERINARY MEDICAL ASSOCIATION.

This association held its annual meeting January 14, 1910, in Denver. The following members were present: Drs. Chas. G. Lamb, M. J. Dunleavy, M. J. Woodliffe, A. G. Fisk, Emile Pouppirt, C. Wade, Denver; Geo. H. Glover, B. F. Kaupp, I. E. Newsom, C. L. Barnes, A. W. Whitehouse, Fort Collins; Geo. W. Dickey, Colorado Springs; A. B. McCapes, Geo. W. Pell, Boulder; F. W. Culver, Longmont; E. J. Foreman, Trinidad;

Edward N. Farrel, Eaton; Wm. Schumacher, Durango; Robt. H. Bird, Thos. Quinn, Greeley.

The following new members were elected: C. Wade, Denver; W. W. Courtwright, Monte Vista; Edward N. Farrel, Eaton, A. G. Fisk, Denver; A. W. Whitehouse, Fort Collins; Geo. W. Bell, Boulder.

The following officers were elected for the ensuing year: President, Robert H. Bird, Greeley; First Vice-President, E. J. Foreman, Trinidad; Second Vice-President, F. W. Culver, Longmont; Secretary and Treasurer, M. J. Woodliffe, Denver; Executive Board—Drs. Chas. G. Lamb, Denver; Geo. H. Glover, Fort Collins; Geo. W. Dickey, Colorado Springs.

After disposing of the routine work, the meeting adjourned to the Auditorium Hotel, where all enjoyed a banquet.

The next meeting will be held in June.

M. J. WOODLIFFE, Secretary.

THE LOUISIANA VETERINARY MEDICAL ASSOCIATION.

The above association met in New Orleans January 19; fourteen members present. Paper of an interesting case of intestinal calculus in a standard bred sorrel gelding was read by Dr. E. P. Flower, Baton Rouge, La. Paper on "Good of the Profession." Recital of a number of cases followed by animated discussions were indulged in. The following officers were elected for the ensuing year: Dr. W. H. Dalrymple, president; Dr. H. G. Patterson, New Orleans, La., vice-president; Dr. E. Pegram Flower, the present incumbent, secretary-treasurer by acclamation. Resolutions on the untimely death of Dr. M. M. White were ordered drawn up and a copy sent his relatives. An elaborate banquet followed the meeting, participated in by all members present, in addition having as guest Dr. Laughlin, veterinarian in employ of the government at the Isthmus of Panama. This association has grown during the past two years from a membership of nine to twenty-three, and hereafter will meet twice per year.

E. PEGRAM FLOWER, D.V.S., Secretary.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alumni Ass'n, N. Y.-A. V. C....	Sept. 6, 7, 8, 9, -10	141 W. 54th St. San Francisco.	L. L. Glynn, N. Y. City.
American V. M. Ass'n.....			R. P. Lyman, Kansas City, Mo.
Arkansas Veterinary Ass'n.....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	Horace E. Rice, Little Rock.
Ass'n Médécalle Veterinaire Française "Laval".....	2d Fri. ea. mo.	Chicago.....	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....		San Francisco.	D. D. Tierney, Chicago, Ill.
California State V. M. Ass'n.....		Ottawa.....	J. J. Hogarty, Oakland.
Central Canada V. Ass'n.....	2d Tues. ea. mo	Chicago.....	A. E. James, Ottawa.
Chicago Veterinary Society.....		Denver.....	J. M. Parks, Chicago.
Colorado State V. M. Ass'n.....			M. J. Woodliffe, Denver.
Connecticut V. M. Ass'n.....			B. K. Dow, Willimantic.
Genesee Valley V. M. Ass'n.....			J. H. Taylor, Henrietta.
Georgia State V. M. A.....			P. F. Bahnsen, Americus.
Hamilton Co. (Ohio) V. A.....			Louis P. Cook, Cincinnati.
Illinois State V. M. Ass'n.....			J. H. Crawford, Harvard.
Illinois V. M. and Surg. A.....	Jan. and Aug.	Louisville.....	W. A. Swain, Mt. Pulaski.
Indiana Veterinary Association.....			E. M. Bronson, Indianapolis.
Iowa Veterinary Ass'n.....			H. C. Simpson, Denison.
Kansas State V. M. Ass'n.....			B. Rogers, Manhattan.
Kentucky V. M. Ass'n.....		Not decided	D. A. Piatt, Lexington.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia.....	S. Lockett, Glenolden.
Louisiana State V. M. Ass'n.....			E. P. Flower, Baton Rouge.
Maine Vet. Med. Ass'n.....			A. Joly, Waterville.
Maryland State Vet. Society.....		Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Michigan State V. M. Ass'n.....			Judson Black, Richmond.
Minnesota State V. M. Ass'n.....			G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n.....			J. C. Robert, Agricultural Col.
Missouri Valley V. Ass'n.....	July 1910.....	Omaha.....	B. F. Kaupp, Fort Collins, Colo.
Missouri Vet. Med. Ass'n.....		St. Joseph.....	F. F. Brown, Kansas City.
Montana State V. M. A.....		Helena.....	W. S. Swank, Miles City.
Nebraska V. M. Ass'n.....		Grand Island.....	H. Jensen, Weeping Water.
New York S. V. M. Soc'y.....		Ithaca.....	J. F. De Vine, Goshen.
North Carolina V. M. Ass'n.....		Wilmington.....	Adam Fisher, Charlotte.
North Dakota V. M. Ass'n.....	Call of Sec'y.....	Fargo.....	C. H. Martin, Valley City.
Ohio State V. M. Ass'n.....			Sidney D. Myers, Wilmington.
Ohio Soc. of Comparative Med.....	Annually.....	Up'r Sandusky.....	F. F. Sheets, Van Wert, Ohio.
Oklahoma V. M. Ass'n.....			R. A. Phillips, Oklahoma City.
Ontario Vet. Ass'n.....			C. H. Sweetapple, Toronto.
Passaic Co. V. M. Ass'n.....	Call of Chair.....	Paterson, N. J.....	H. K. Berry, Paterson, N. J.
Pennsylvania State V. M. A.....	Mar. 8-9, 1910.....	Philadelphia.....	F. H. Schneider, Philadelphia.
Philippine V. M. A.....			Chas. G. Thomson, Manila.
Province of Quebec V. M. A.....		Mon. and Que.....	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June.....	Providence.....	J. S. Pollard, Providence.
St. Louis Soc. of Vet. Inspectors.....	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo.
Schuylkill Valley V. M. A.....	June 15, 1910.....	Reading.....	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	July, 1910.....	Philadelphia.....	B. T. Woodward, Wash'n. D. C.
South Dakota V. M. A.....		Sioux Falls.....	J. A. Graham, Sioux Falls.
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles.....	J. A. Edmonds, Los Angeles.
So. St. Joseph Ass'n of Vet. Insp.....	4th Tues. ea. mo.	407 Ill. Ave.....	H. R. Collins, So. St. Joseph.
Tennessee Vet. Med. Ass'n.....			A. C. Topmiller, Murfreesboro.
Texas V. M. Ass'n.....	Call Exec. Com.		R. P. Marsteller, College Sta.
Twin City V. M. Ass'n.....	2d Thu. ea. mo.	St. P.-Minneapolis.....	S. H. Ward, St. Paul, Minn.
Vermont Vet. Med. Ass'n.....			F. W. Chamberlain, Burlington.
Veterinary Ass'n of Alberta.....			C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Vet. Ass'n Dist. of Columbia.....	3d Wed. ea. mo.....	514-9th St., N. W.....	M. Page Smith, Wash., D. C.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
Vet. Med. Ass'n of N. J.....			W. Herbert Lowe, Paterson.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Veterinary Practitioners' Club.....	Monthly.....	Jersey City.....	A. F. Mount, Jersey City.
Virginia State V. M. Ass'n.....			W. G. Chrisman, Charlo'sv'le.
Washington State Col. V. M. A.....	1st & 3d Fri. Eve.	Pullman.....	R. G. McAlister, Pullman.
Washington State V. M. A.....		Seattle.....	J. T. Seely, Seattle.
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh.....	F. Weitzell, Allegheny.
Wisconsin Soc. Vet. Grad.....		Grand Rapids.....	J. P. West, Madison.
York Co. (Pa.) V. M. A.....			E. S. Bausticker, York, Pa.

PUBLISHERS' DEPARTMENT.

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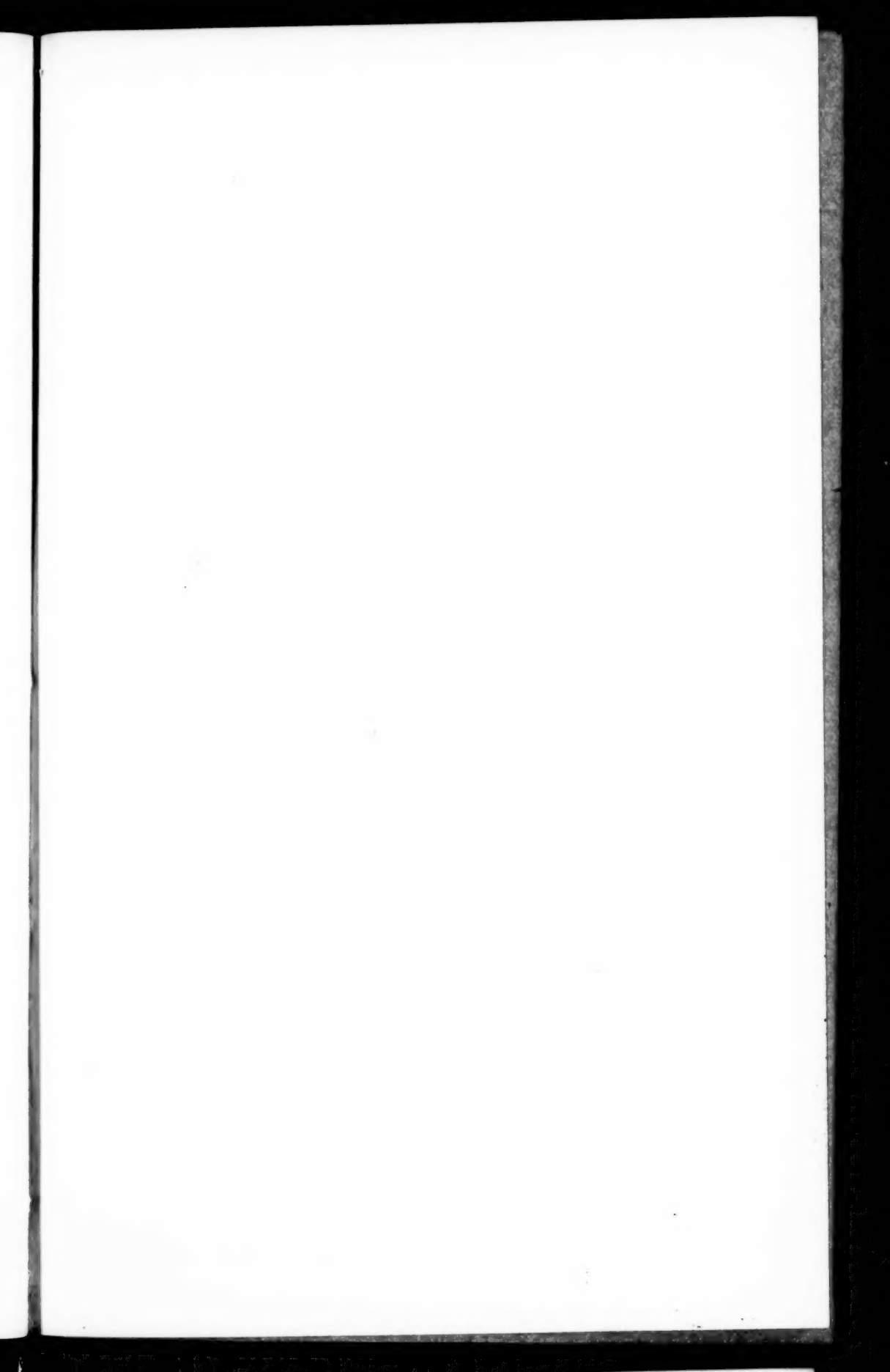
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